A SYSTEM FOR INTEGRATED ENVIRONMENTAL MANAGEMENT IN LOCAL AUTHORITIES TO INFORM DEPARTMENTAL DECISION-MAKING: THE CASE OF HESSEQUA MUNICIPALITY

by

Shagon Lindley Carelse

Thesis presented in partial fulfilment of the requirements for the degree Masters in Public Administration in the faculty of Economic and Management Sciences at Stellenbosch University

Supervisor: Professor Kobus Muller

December 2016

Declaration

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (safe to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: .....

ABSTRACT

Integrated Environmental Management (IEM) provides for a range of principles, tools and ideologies and is rolled out on an international level. There are various versions of IEM, and generally they have shared commonalities which in most cases are linked to sustainable development. The shared features which are always present, irrespective of country, are the impact and influence of the economy, society and the environment. The key ideology surrounding IEM is the continuous effort to find and maintain equilibrium between the economy, society and the environment. This thesis provides an outline of some of the more popular international theories relating to IEM and the practical application thereof with regard to tools and strategies.

In South Africa, IEM is directly associated with sustainable development where its primary focus is finding the balance between development and the environment. For this reason, the local context of IEM will also be explored in this thesis, specifically to show how it aligns with the country's local legislation and programmes. The focus of this study is to show how this ideology by manner of various programmes, statutes and mandates cascades down from the national orbit of the state to local government. The study illustrates the practical application of IEM through the development of tools and programmes with which the philosophy is brought to grassroots level.

These tools are specifically developed and prescribed for use by local government and two of the most common types are the Environmental Management System (EMS) and the Environmental Management Framework (EMF). The two tools are discussed as to their definition, the elements making up the tool and the benefits thereof. Discussions surrounding the EMS will include the definition of such a system, elements guiding the tool and the basics thereof, and also provide a brief overview of how it can conform to the ISO 14001 international standard. The analysis of the EMF will entail a definition of the framework, legal standings and purpose thereof, as well as an overview of how such a tool will be structured and the processes involved in its development. In order to demonstrate the development and practical implementation of these tools, Hessequa Municipality, due to its unique biodiversity and environmental management challenges, will be used as a case study.

In light of the above an Ethnographic Research: Case Study design is proposed, which will be qualitative in nature and the aim will be to give an in-depth description of the municipality's

ability to perform integrated environmental management. Most of the data will fall within the ambit of textual, hybrid type of data with low control, as flexible and exploratory analysis methods will be used.

The aim is to compare different IEM philosophies across the boundaries of the various spheres of government as well as on an international level in the context of international theories. The purpose of the study is to compare different IEM tools and more specifically have an in-depth look at the EMS and EMF respectively and devise the benefits of each if properly developed, implemented and managed. The overall purpose of this study is to assess Hessequa Municipality with regard to the state of its environment and how it adheres to statutory obligations and finally how these tools can be incorporated into the municipal system. The objective being improved environmental performance across the spectrum of the municipal departments.

OPSOMMING

Geïntegreerde Omgewingsbestuur (GOB) maak voorsiening vir ’n verskeidenheid van beginsels, instrumente en ideologieë en word op internasionale vlak geïmplementeer. Daar is verskeie weergawes van GOB wat oor die algemeen gedeelde gemeenskaplikhede het en in die meeste gevalle aan volhoubare ontwikkeling gekoppel is. Die gedeelde eienskappe wat altyd teenwoordig is, ongeag die land, is die impak en invloed van die ekonomie, die samelewing en die omgewing. Die belangrikste ideologie met betrekking tot GOB is deurlopende pogings om ’n balans tussen die ekonomie, die samelewing en die omgewing te vind en te handhaaf. Hierdie tesis bied ’n uiteensetting van ’n paar van die meer gewilde internasionale teorieë met betrekking tot GOB en die praktiese toepassing daarvan deur middel van instrumente en strategieë.

In Suid-Afrika hou GOB direk met volhoubare ontwikkeling verband, met die primêre fokus om die balans tussen ontwikkeling en die omgewing te vind. Om hierdie rede sal die plaaslike konteks van GOB ook in hierdie tesis ondersoek word, spesifiek om aan te dui hoe dit met Suid Afrika se plaaslike wetgewing en programme ooreenstem. Die oogmerk van hierdie studie is om aan te toon hoe hierdie ideologie by wyse van verskeie programme, statute en mandate van die nasionale vlak van regering na plaaslike regering afwentel. Die studie illustreer die praktiese toepassing van GOB deur die ontwikkeling van instrumente en programme waarmee die filosofie na voetsoolvlak gebring word.

Hierdie instrumente is spesifiek ontwikkel en voorgeskryf vir gebruik deur plaaslike regering. Die twee wat meer algemeen is, is die Omgewingsbestuurstelsel (OBS) en die Omgewingsbestuursraamwerk (OBR). Die twee instrumente word bespreek met ’n uiteensetting van die definisie, die elemente waaruit die instrument bestaan en die voordele daarvan. Besprekings oor die OBS sal handel oor die definisie van so ’n stelsel, die elemente wat met die instrument en die basiese beginsels daarvan verband hou asook ’n kort oorsig van hoe dit aan die ISO 14001- internasionale standaard kan voldoen. Die ontleding van die OBR sal ’n definisie van die raamwerk, wetlike standpunte en die doel daarvan behels, asook ’n oorsig van hoe so ’n instrument gestruktureer sal word en die ontwikkelingsprosesse wat daarmee gepaard gaan. Ten einde die ontwikkeling en praktiese implementering van hierdie

instrumente te demonstreer, sal Hessequa Munisipaliteit, gegewe sy unieke biodiversiteit en uitdagings met omgewingsbestuur, as ’n gevallestudie gebruik word.

In die lig van bogenoemde word ’n Etnografiese Navorsing: Gevallestudie-ontwerp voorgestel, wat kwalitatief van aard sal wees en met die doel om ’n grondige beskrywing te gee van die munisipaliteit se vermoë om geïntegreerde omgewingsbestuur toe te pas. Die meeste van die data sal binne die bestek van tekstuele, hibriede tipe data met lae beheer val, aangesien buigsame en ondersoekende ontledingsmetodes gebruik sal word.

Die doel is om verskillende GOB-filosofieë oor die grense van die verskillende sfere van regering, asook op internasionale vlak in die konteks van internasionale teorieë te vergelyk. Die doel van die studie is om verskillende GOB-instrumente te vergelyk en meer spesifiek die OBS en OBR onderskeidelik deeglik in oënskou te neem en elkeen se voordele te bepaal indien dit behoorlik ontwikkel, geïmplementeer en bestuur word. Die oorkoepelende doel van hierdie studie is om Hessequa Munisipaliteit te evalueer ten opsigte van die stand van sy omgewing en hoe dit aan statutêre verpligtinge voldoen en hoe hierdie instrumente gevolglik in die munisipale stelsel opgeneem kan word. Die mikpunt is verbeterde omgewingsprestasie oor die hele spektrum van munisipale departemente.

ACKNOWLEDGEMENTS

The completion of this Master of Commerce in Public and Development Management would not have been possible without the assistance, support, collaboration and contributions of the following people and/or institutes:

- Prof JJ Müller for supervision.
- The Hessequa Municipality for availing itself and its resources to partake in this study.
- To my wife, for all her unending help, for all her guidance and motivation through the difficult parts of this endeavour, for all her silent support, and for being there for me when I needed someone to lean on the most.
- Father and mother, father for always thinking about me from a long way off.
- Family and friends for guidance and support.

Table of Contents

TABLE OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

AQMP	Air Quality Management Plan
CBA	Critical biodiversity areas
CEA	Cumulative effects assessment
CMP	Coastal Management Plan
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DEAT	Department of Environmental Affairs and Tourism
DMP	Disaster Management Plan
EDM	Eden District Municipality
EIA	Environmental impact assessment
EMF	Environmental Management Framework
EMI	Environmental management inspector
EMP	Environmental Management Plan
EMS	Environmental Management System
GCBR	Gouritz Cluster Biosphere Reserve
HR	Human resources
ICMA	Integrated Coastal Management Act
IDP	Integrated Development Plan
IMQS	Infrastructure Management Query Software
IWMP	Integrated Waste Management Plan
ISO	International Organisation for Standardisation
KPA	Key performance area

MCC	Municipal Coastal Committee
MEC	Member of Executive Committee
NEM:AQA	National Environmental Management: Air Quality Act
NEM:BA	National Environmental Management: Biodiversity Act
NEM:WA	National Environmental Management: Waste Act
NFSD	National Framework for Sustainable Development in South Africa
NGO	Non-governmental organisation
NRM	Natural resource management
PDCA	Plan, Do, Check, Act
SALGA	South African Local Government Association
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SEA	Strategic environmental assessment
SLA	Service level agreement
SOER	State of the Environment Report
SOP	Standard operating procedures
Stats SA	Statistics South Africa
UN	United Nations
UNEP	United Nations Environment Programme
WCED	World Commission on the Environment and Developmen

Chapter 1: A system for integrated environmental management in local authorities

1.1. Background/Rationale

1.1.1 Hessequa Municipality

Hessequa Municipality, with an area of 5,733 km², is rich in biodiversity that is unique to the area. The municipality itself, like most of South Africa's local authorities, is going through increasingly tough financial difficulties and is hard pressed to deliver proper services with a limited amount of resources. The communities are impoverished and demand proper services, housing and job creation. With a growing population that is gradually putting increasing strain on the natural environment, the municipality is confronted with the challenge of distributing the available natural resources in a fair and equitable manner that will not adversely affect the underprivileged majority of the population. Consequently, if managed in the correct fashion, the natural environment is one of the resources which can be utilised to ensure economic growth for the area and the municipality.

The municipality itself is hard pressed to see to the needs of its citizens, with the result that environmental issues are not prioritised. Consequently the municipality is internally not capacitated to perform coordinated environmental management throughout its internal structure and therefore lack the ability to make good, informed environmental decisions. Although an effort is made, environmental legislation is not adhered to in most cases which has led to an environment that has been adversely affected by its decision-making.

Different environmental legislation requires local authorities to have structures and regulations in place which should govern the municipal decision-making process. Hessequa Municipality has sets of by-laws in place, but no formal structure which governs how these by-laws should be enforced, nor is it rolled out to all the relevant departments within the organisation. A structure or system is also needed to evaluate environmental performance against the legal requirements as set out in environmental legislation.

Against this background, the municipality needs to develop a system with which to evaluate its environmental performance. It should also develop a strategy and a set of tools with which to implement and regulate its environmental decision-making and activities.

The tools should be user-friendly and dictate the processes followed in decision-making processes regarding the environment. An Environmental Management Framework is the proposed toolset that can be rolled out interdepartmentally. An overarching system needs to monitor the use of this utility as well as the resulting decisions and actions that stem from its use in order to ensure that the environment, both natural and manmade, is utilised in a sustainable fashion. An Environmental Management System is proposed to fulfil these functions. These systems and processes will form part of integrated environmental management, which is the preferred approach to manage the environmental impacts of our activities.

1.1.2 Legislative background

Environmental Management in South Africa is governed by a range of environmental statutes which provides guidelines as to the various procedures that circumvents sustainable development and the sustainable management of all our natural resources. Those legislations applicable to this paper will be discussed in order to demonstrate how they integrate into each other and how they filter into the ambit of local government. One of the first statutes to be implemented in South Africa was the Environmental Conservation Act (South Africa, 1989) (ECA) in 1989. One of its primary objectives was to prohibit environmental degradation. Unfortunately, this act was never properly implemented as envisioned, it was therefore repealed and replaced in 1998 by an act more implementable and applicable to our changing environment. It should be noted that some of the provisions of the act still remains and today forms a specific environmental act (SEMA) under its successor. The provisions that was not repealed deals with environmental impact assessments (EIAs).

Local authorities in most cases may provide for environmental services which should be beneficial to the broader community. Due to shortage of resources which includes funds and capacity, local authorities are sometimes required to go into partnerships with other entities, including other municipalities and state departments. Section 88 of the Local Government: Municipal Structures Act (South Africa: 1998c:37) makes provision for local authorities to cooperate, assist and support each other when striving to obtain the same objectives. In this instance it should be note that this relationship also refers to cooperative governance between local and district authorities, as well as cross boundary initiatives between two or more neighbouring municipalities.

The Local Government: Municipal Structures Act (South Africa:1998c) are supported by the Demarcation Act (South Africa: 1998a:10) as it ensures that municipal boundaries (Section 24) should be established in such a manner as to ensure that communities are provided with services in a sustainable and equitable manner. This act therefore makes it possible for district and local municipalities to provide joint services, such as in the case of Hessequa Municipality with regards to the shared functions via service level agreements to perform air quality management and to compile a joint coastal management program.

Contemporary environmental management was founded on the above mentioned legislation, which acted as catalyst for the development of the National Environmental Management Act (South Africa:1998b) (NEMA). All environmental legislation falls under the ambit of NEMA which is the presiding statutes and all other subordinate legislations are called SEMAs as is the case with ECA. NEMA also deals with integrated environmental management in chapter 5 (South Africa, 1998b:34) and promotes the use of environmental management tools as a means to improve environmental sustainability (sustainability refers to *"The ability to be maintained at a certain rate or level*" (Oxford Living Dictionaries, 2016)). Section 28 of the act provides a directive to municipalities that they should take reasonable measures to rehabilitate areas where they caused damage to the environment. The environmental services that municipalities provide should therefore be in a sustainable manner as far as their resources allow. This provision is also allowed for under the Local Government: Municipal Systems Act (South Africa: 2000:20) in Section 4 (2) (9).

Provision of services in an environmental sustainable manner can also refer to the protection of the environment, such as local authority nature reserves, which in this instance is provided for under the National Environmental Management: Protected Areas Act (South Africa, 2003a:3) (NEM: PAA). This act allows for those areas which remains natural, whether seascape or landscape to be declared as protected areas. Seascapes also includes the coastal zone and municipalities such as Hessequa Municipality which is bordered by the ocean is obliged to assist the district municipality where applicable and with the relevant agreements in place, to help control and management this area. Also included in seascapes are biodiversity rich areas which might require protection status, these areas are usually referred to as critical biodiversity areas or ecological support areas.

The biodiversity and ecological support aspects of areas under the control of a local authority are made provision for under the National Environmental Management: Biodiversity Act

(South Africa, 2004c:46) which in Section 48 (2) stipulates that the National Biodiversity Framework and associated bioregional plans should be reflected in the IDP of the local authority. In the case of Hessequa Municipality provision is made for a Biodiversity Sector Plan for Hessequa and Mossel Bay Municipalities (SANSBI, 2010) (attached as Addendum 3).

Municipalities can make by-laws to regulate their Biodiversity Sector Plans as this has been allowed for under the Constitution (South Africa, 2008c:90) in Section 156 (2). The Spatial Planning and Land Use Management Act (South Africa, 2013:40) (SPLUMA) also states that a municipality may develop by-laws to regulate their land use scheme. SPLUMA also makes provision for municipalities to draft a SDF which should be incorporated into the municipal IDP. The National Environmental Management: Integrated Coastal Management Amendment Act (South Africa, 2014: 64) (NEM: ICMA) in Section 48 (4) makes allowance for a district municipality to prepare and adopt a coastal management programme, also as part of the municipal IDP and its SDF. This is also the case for a local authority who may also prepare and adopt a coastal management programme. The IDP and SDF however should conform to the provision made in the Local Government: Municipal Systems Act (South Africa: 2000:36) and should also be aligned with its national, provincial and district counterparts. Due to the importance of SDFs, the Western Cape government developed the Land Use Planning Act (Western Cape, 2014a) which acts as a guideline for both the province, district and local municipalities as to the development of their SDFs.

1.1.3 Policy background

One way in which environmental protection and management can be transferred into the strategic ambit of local government is by means of their IDPs and SDFs. The Department of Environmental Affairs and Tourism in 2004 released a series of guidelines, one being the Integrated Environmental Management Information Series (South Africa, 2004a) in which the concepts, tools and principles of IEM are described. It is suggested that the South African term ‘integrated environmental management’ is comparable with the international philosophy of ‘environmental management and assessment’. The department also developed a set of integrated environmental management tools to support, amongst others, local government. These tools can be incorporated into the strategic planning documentation of local authorities.

Drakenstein Municipality pose as an example of the successful inclusion of such a tool in its IDP and SDF. They, with the assistance of the Department of Environmental Affairs and Development Planning (DEA&DP), developed an EMF (Drakenstein Municipality, 2012) for

their municipal area. The EMF conforms with the Environmental Management Framework Regulations (South Africa, 2010b:201), which states that one of the main objectives of an EMF is that it can be used as a tool to inform the decision-making process regarding the impact of human activities and development on the environment.

The department defines some of the key tools applicable to IEM as follow:

a. Environmental Management System: a tool that provide guidance on how to manage the environmental impacts of activities, services and products. The tool details the organisational structure, responsibilities, practices, procedures, resources and process required for implementing and maintaining environmental management (South Africa, 2004a).
b. Environmental Impact Assessment: designed for its predictive capabilities, as it should predict the positive and negative environmental impacts of a proposed project. The tool aims to determine means to reduce adverse impacts and direct projects to better suite the local environment. The tool is project and site-specific and does not concern itself with strategic issues (South Africa, 2004a).
c. Indicators: used to evaluate and monitor the extent of change brought about by actions or developments and how it impacts the environment (South Africa, 2004a).
d. Environmental Management Plan: usually form part of an EMS and gives direction to the management of activities to ensure that the impact on the environment will be minimal. The Environmental Management Plan can be applied to all the stages in the lifecycle of an activity, one of its objectives is to ensure that all conditions of the authorisation is achieved (South Africa, 2004a).

1.1.4 Theoretical background

In support of the legal aspects of the integrated environmental management philosophy and associated tools, a brief overview of some of the available international and local theories will be given. In order to understand the concept, a definition is proposed by the ENVIROPAEDIA (Integrated Environmental Management, 2007) which defines integrated environmental management as a philosophy that differs from an environmental impact assessment (EIA) as its primary concern is to find a balance between development and the environment. The philosophy provides us with a set of guidelines and principles which directs us throughout the different stages of implementing environmental policies, processes, projects or tools. It is used as a guideline from the conception of an idea throughout its lifecycle until it is brought to fruition.

A tool that can be utilized in transferring this philosophy throughout its lifecycle is an Environmental Management System.

Rendell and McGinty (2004:213) developed a guidebook in which they propose an Environmental Management System as a tool which municipalities can implement with minimal outside support. Most organisations have inherent environmental management systems or techniques that are not transcribed and the EMS procedures are ideal in formalising these mechanisms in the sense that it documents all the relevant approaches that can be utilised in this regard. The writers also propose the ISO 14001 international standard as a conceptual framework for integrated environmental management.

Darabaris (2008:37) indicates that the ISO 14001 international standard is used in various environments such as manufacturing and the corporate and public sector. The reason why it can be widely used, is because of the three types of environmental indicators that it proposes, which are:

1. Operational indicators – measures the direct stress on the natural environment.
2. Management indicators – which refers to the measures in place within the organisation to deal with the impacts on the environment.
3. Environment condition indicators – the indicators are used to measure the quality of the current environment.

These types of indicators can be built into integrated environmental management tools such as an EMF and EMS.

Although ISO 14001is the preferred tool for this study, it does come with some critique, one of which is that due to its ability to be adopted in various sectors of the economy and owing to its popularity, it became a trademark name. Meaning that the tool in some cases can be implemented by an organisation not to improve its environmental performance, but to enhance the credibility of its products. Starkey (1999:59) argues that the adoption of ISO 14001 will limit public involvement as the public will not be able to set the organisation's targets nor will it be able to monitor the performance of the said organisation. The standards are set by the organisation itself and it is against these standards that they are judged against. Another issue with ISO 14001 is that it is purely voluntary and organisations or for the purpose of this study municipalities will not be required to disclose their environmental performance results to the

public (McCreary, 1996:66). The standard predominantly focusses on the management practices of organisations as oppose to specific performance requirements.

The ISO 14001 standard does however have a strong prerequisite with regards to environmental performance and hence the reason for it being chosen for this study and it requires organisations or municipalities as in this case, to make a commitment to comply with environmental statutes.

An aspect which has not been discussed and which in essence goes hand in hand with environmental management and its associated tools, is the ideology of environmental governance. In the National Framework on Sustainable Development in South Africa (NFSD) (Department of Environmental Affairs and Tourism (South Africa, 2008b:15), it is stated that *"… a systems approach to sustainability is one where the economic system, the socio-political system and the ecosystem are imbedded within each other, and then integrated through the governance system that holds all together in a legitimate regulatory framework".*

The Department of Environmental Affairs defines environmental governance as *"… the processes of decision-making involved in controlling and managing the environment and natural resources. Principles such as inclusivity, representivity, accountability, efficiency, and effectiveness, as well as social equity and justice, are the foundations of good governance"* (DEA, 2010). Depicted in this study is the fact that there are a number of problems with effective environmental management faced by municipalities, for example the lack of funds and capacity at local government level, as well as the issue of unfunded mandates. What has not been emphasised is that the problems faced by environmental management are vertically aligned with environmental governance as the overarching ideology and system. Carley and Christie (2000:176) state that limitations of governance have a definite impact on environmental management and conservation. Examples are the over-reliance on institutional reform, poor vertical integration and the inability to learn from experience. It should be noted that governance in most cases refers to the operational aspects of government throughout its spheres and organs of state.

1.2 Problem statement

With no integrated environmental management strategy in place, departments within local authorities have no or limited means of making informed environmental decisions.

1.3 Research question

By comparing current environmental compliance against requirements prescribed by relevant legislation, can integrated environmental management tools be developed with which the local authority can manage the environmental impacts of its decisions and actions?

1.4 Objectives:

a. Establish the key international theories concerning IEM and its associated ideologies, tools and strategies.

b. Determine what local theories regarding IEM is available and illustrate how it conforms to sustainable development.

c. Contextualise and describe the Environmental Management Framework (EMF) as a tool which conforms to the principles of an EMS with which departments within local authorities can consider environmental factors in its decision-making process.

d. Evaluate Hessequa Municipality's environmental performance by comparing the extent to which it adheres to relevant legislation.

e. Develop a proposal for an Environmental Management System (EMS) which can be used to support environmental management, improve its legislative compliance and environmental performance of the organisation.

1.5 Research design and methodology

Hessequa Municipality is a B-municipality, which for the purpose of this study will be used as a case study with specific reference to its ability to perform environmental management. Environmental management therefore will be the area of focus and the key theme will be integrated environmental management at local authority level.

In light of the above, an Ethnographic Research: Case Study design is proposed, which will be qualitative in nature and the aim will be to provide an in-depth description of the municipality's ability to perform integrated environmental management. Most of the data will fall within the ambit of textual, hybrid-type data with low control, as flexible and exploratory analysis methods will be used. Data will be collected by making use of semi-structured interviews for clarification

purposes and others means of gathering data will include literature reviews where document sources will be analysed.

The above methods will be used to generate findings of how best to proceed in the development of a strategy for supporting the existing environmental management infrastructure of the municipality.

1.6 Timeframe

The research was conducted from 2013 to 2015.

1.7 Outline of chapters

- Chapter 1 – Introductory perspective
- Chapter 2 – Integrated environmental management on an international level
- Chapter 3 – Integrated environmental management on a national level
- Chapter 4 – Integrated environmental management tools: Environmental Management Systems and Environmental Management Frameworks within South Africa
- Chapter 5 – The case of Hessequa Municipality
- Chapter 6 – Analysis of study findings
- Chapter 7 – Recommendations and conclusion
- Bibliography
- Annexures

Chapter 2: Integrated environmental management on an international level

2.1 Introduction

Integrated environmental management on a global scale is in essence a new theme with old principles and ideologies. On the international front it is known by various names as each country has its own approach and branding for how they manage their environment. The shared features which are always present, irrespective of country, are the impact and influence of the economy, society and the environment. It should be noted that integrated environmental management and, likewise, ideologies entail synergy between various stakeholders which include the natural resource-dependent communities and government agencies (Heikkila & Gerlak, 2005:583).

It is important to take cognizance of the critique against IEM as it plays an important role in how the philosophy is adapted and applied. An example is the extent to which IEM is criticised for the manner in which it simplifies problems, which according to critiques reduces the link to reality (Scrase & Sheate, 2002:291). Bardwell (1991:608) contradicts this statement and states that in order to manage a problem successfully the information at hand should be simplified to such an extend as to limit conflict management and that the successful integration of the philosophy relies to some extend on the simplification of information. Scrase and Sheate (2002:279) also states that IEM assumes that *"…corrective action is needed because environmental considerations have systematically underrepresented in the past"*. Another assumption of the philosophy is that wider participation in decision making is valuable, as participation can add value to the process. But it is these deeply held values that Scrase and Sheate (2002:285) question, as they argue that it threatens environmental sustainability and that conflicting values can be productive if harnessed in the correct fashion as it can help shape objectives for policies and programs. IEM is also critisised as it can be detrimental to environmental management, in the sense that policy-makers assumes that by applying the philosophy they are acting on scientific advice which in itself is bad for social learning, objectivity of policy-making and planning (Scrase & Sheate, 2002:285).

Against this introduction which depicts both positive and negative aspects of IEM, this chapter will outline some of the key international theories concerning the philosophy and associated

ideologies and also give practical examples of the implementation thereof through tools and strategies.

2.2 Integrated environmental management and associated ideologies

The increasing complexity and commonality of environmental issues have stimulated and encouraged the development of concepts and ideologies which are orientated towards dealing with complex environmental impediments. Examples of these concepts include:

1. Ecosystem management
2. Integrated resource management
3. Watershed management
4. Sustainable natural resource management
5. Integrated environmental management (IEM) (Margerum & Born, 2000:5)
6. Collaborative resource management
7. Community forestry
8. Community-based conservation
9. Community-based ecosystem management (not reflected in figure 1)
10. Grassroots ecosystem management, and
11. Community-based environmental protection (Conley & Moote, 2003:372)

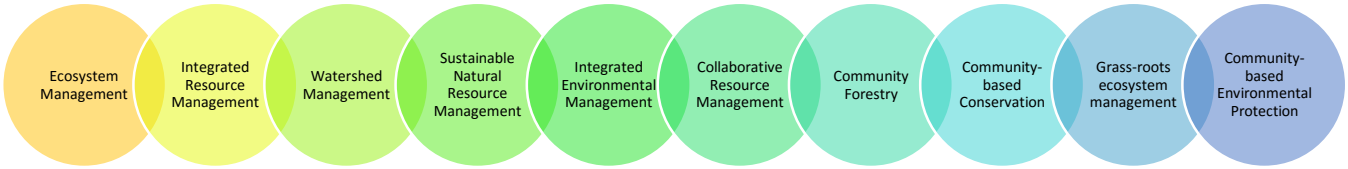


Figure 2.1: Integrated Environmental Management and Associated Ideologies (Margerum & Born, 2000: 5); *(Conley & Moote, 2003: 372)*

2.3 Integrated environmental management: International theory

These concepts in essence are holistic approaches to manage different aspects of our environment and most of them try to incorporate the economic, social and natural environments. Conley and Moote (2003:371-2) proposes that the collaborative approach is the way forward for dealing with complex environmental issues as it promotes effectiveness and efficiency. An example of one these approaches is sustainable natural resource management (NRM).

According to Dale, McDonald and Weston (2008:398) NRM recognises the importance of ensuring continued productivity through the use of natural resources, of ensuring that those communities dependent on natural resources continue to prosper and of identifying the components crucial to the health of ecosystems and biodiversity. It also recognises that landscape productivity should be sustained and the importance of maintaining the aesthetic, cultural and social values generated by our natural resources. Another characteristic of NRM is that it is target specific and has an expansive as well as long-term focus on natural resource values. Dale et al. (2008:399) also remark that in the context of NRM, regional planning systems have the potential to integrate environmental, economic and social policies with a spatial context which contributes to sustainable development.

The rationalisation for regional planning systems is that it addresses the issues surrounding natural resource management on a regional scale. Managing these issues on a regional scale means that integration of the political and administrative abilities of stakeholders is so much better in balancing the various dimensions concerning the economy, society or community and natural environment when planning current and future developments. In this instance ecosystem services which does not conform to administrative boundaries will be facilitated. NRM also advocates the decentralisation of decision-making by facilitating the participation of local communities. Underpinning this methodology is the assumption that local communities are closer to the environmental problem as well as the solution, and therefore are in a better position to understand and deal with the said problem. This is in essence a community-based approach which makes provision for the utilisation of local knowledge, therefore creating a better understanding of local problems and improving cooperative partnerships.

Globally, the NRM ideology is gaining in popularity, especially in Australia, as it preaches the regionalisation of environmental and natural resource planning and management, which is central to environmental management (Jennings & Moore, 2000:178). Key Australian programmes which are examples of how NRM can be incorporated into policies and plans, are the National Action Plan for Salinity and Water Quality (NAP) and the Natural Heritage Trust (NHT), which are based on NRM principles and procedures (Dale et al., 2008:398). In this regard, the themes covered in Australian regional natural resource planning activities cover various subjects including economic development, biodiversity, water and coastal elements. Central to these approaches is the development of the capacity of local people and institutions in sustainable resource management by means of NRM approaches. The aim of NRM is to achieve collaborative, integrated and coordinated planning and management at stakeholder

level, which can be credited to three trends that gained popularity during the 1990s in the North West of England (Shaw & Kidd, 2001:112). These three trends were the regional acceptance of a need for sustainable development, the ever increasing necessity for public involvement in the decision-making processes and the increasing popularity of regional planning and management (Shaw & Kidd, 2001:115).

Although the ideology is the same, the concepts vary from country to country and are known by different appellations. The ideal of these concepts is to address complex environmental problems by means of a holistic, goal orientated and inter-connective approach which is more effective and efficient in resource use (Margerum, 1999:160).

IEM was developed in response to the ineffectiveness of more traditional single-focus methodologies, the increased awareness of cross-boundary environmental problems, an increasing understanding of the complexities governing ecosystems, the relevance of ecosystem concepts on management practices and the increasing international attention on ecological integrity and sustainability. Born and Sonzogni (1995:68) add that previous approaches to natural resource management failed largely due to its reactive nature and narrow approach. Total integration is the ideal and Margerum and Born (2000:5) therefore state that IEM is both a process and an approach with which environmental goals can be attained. It is also the reason for decision-making and management practices to move towards integration obtained by interaction. Interaction in this case means public participation and coordination by and between stakeholders (Margerum, 1999:160). Various bodies such as government institutions and even corporate establishments have their own versions of IEM as well as their own tools by which it is implemented. Some of these tools are more successful than others but they all have the aforementioned ideology at heart.

2.4 Integrated environmental management: International practice

The European Commission (European Community, 2007:8) proposed various tools and a strategy for IEM in a report named *Integrated Environmental Management Guidance in relation to the Thematic Strategy on the Urban Environment*. The aim of this report was to aid European local authorities (those governing cities) in generating a system for integrated environmental management which would improve their environmental performance throughout the whole organisation. Their IEM strategy is based on tangible examples of best practice by various cities within Europe, who in most cases were assisted financially by the European Community.

Environmental challenges faced by cities within the EU gave rise to the IEM strategy which is prescribed to local authorities to remedy their environmental problems (European Community, 2007: 6). The problems they face vary in complexity, severity, frequency and are in most cases interrelated as well as being prevalent in all of their urban areas. These common problems are:

1. Waste and wastewater
2. Urban sprawl
3. High levels of air pollution resulting in poor air quality
4. Dilapidation of the built environment
5. Scarcity of recreational areas and green belts
6. High levels of ambient noise pollution
7. Increasing traffic volumes and subsequent congestion problems
8. High levels of greenhouse gas emissions

The EU proposes an explanation for their environmental issues, which they state are attributes of the ever increasing changes in demography and lifestyle of their citizens of which the following are examples:

1. Increasing reliance on private cars
2. Increasing resource use per person
3. An increase in one-person households

They recommend that solutions should not only apply to current issues, but should be proactive as well in that they limit the impact of future issues. This includes the upward gravitation of solutions into international policies of which the progressive reduction of fossil fuel dependency and climate change are examples.

The EU proposed the Thematic Strategy on the Urban Environment (Commission of the European Communities, 2006:2) and their objective was to contribute to "… *a better quality of life through an integrated approach concentrating on urban areas"* and *"a high level of quality of life and social well-being for citizens by providing an environment where the level of pollution does not give rise to harmful effects on human health and the environment and by encouraging sustainable urban development".*

Sustainable urban development, according to the EU (European Community, 2007:7), requires that an integrated approach be followed. The EU through the Thematic Strategy therefore proposes that integrated environmental management can be achieved by means of support

granted by the top spheres of government (national and provincial) to local authorities. Top-down support can be achieved through linking the various policies governing the environment from national through provincial to that of local government. This also acts as an example of a good integrated administrative system. Another example of an integrated approach is generating long-term strategic visions which would guide future and current endeavors. To the EU, integrated environmental management means that interrelated issues such as environmental stewardship, spatial planning, urban management, economic welfare and social inclusion are addressed en masse. The Thematic Strategy at its core dictates that integrated environmental management be used as the vehicle through which urban areas should be managed. It therefore calls for the strategic management of environmental impacts of all activities throughout the municipal area of jurisdiction. The ideal of this approach is the horizontal integration between departments, the engagement of stakeholders and amalgamation of policies across the three spheres of government. At its core, the strategy attempts to guide authorities in deciding whether to take a holistic and structured approach which categorises key issues, assesses the current state of these challenges, assign targets for policies, then assesses the various options available to policies, facilitates stakeholder engagement and finally leads to the successful implementation of effective policies.

The EU elucidates (European Community, 2007:8) its reasons for following the integrated environmental management philosophy by maintaining that local authorities have a range of functions that they are responsible for. A municipality operates as a single organism with different departments responsible for various functions or responsibilities and this is usually done with limited resources. In light of this background, the EU proposes IEM from an environmental perspective as a tool with which the consistency and cohesion between the various policies and departments can be improved. Another benefit is that IEM improves transparency in policy-making processes and in the implementation thereof, as it promotes public participation and approval.

Further benefits of an IEM system as proposed by the EU consist of the following (European Community, 2007:8):

1. The system's ability to contribute towards attracting investors into the European economy and making it a more attractive place to work
2. Simplifying reporting structures

3. Less input, more output through a reduction in resources and utility use which will improve Europe's competitiveness in the international economy
4. Creating and cultivating existing networks as partnerships and communication between government and citizens improve
5. Improving the environmental awareness of stakeholders, citizens and civil servants
6. Enhancing the reputation of the municipality or local authority
7. Improving the consistency and cost-effectiveness of policy measures
8. Improved compliance with current environmental statutes in an efficient and cost-effective manner.

The European Community (2007:9) proposes a set of key steps or what they call elements with which an Integrated Environmental Management System (IEMS) can be created. The ideal of the IEMS is *"…to improve the environmental performance of an urban area contributing to a better quality of life"* (European Community, 2007: 9). These steps are repetitive in nature as it is repeated annually in order to ensure the functionality of the system, as shown in Figure 2.2 below.

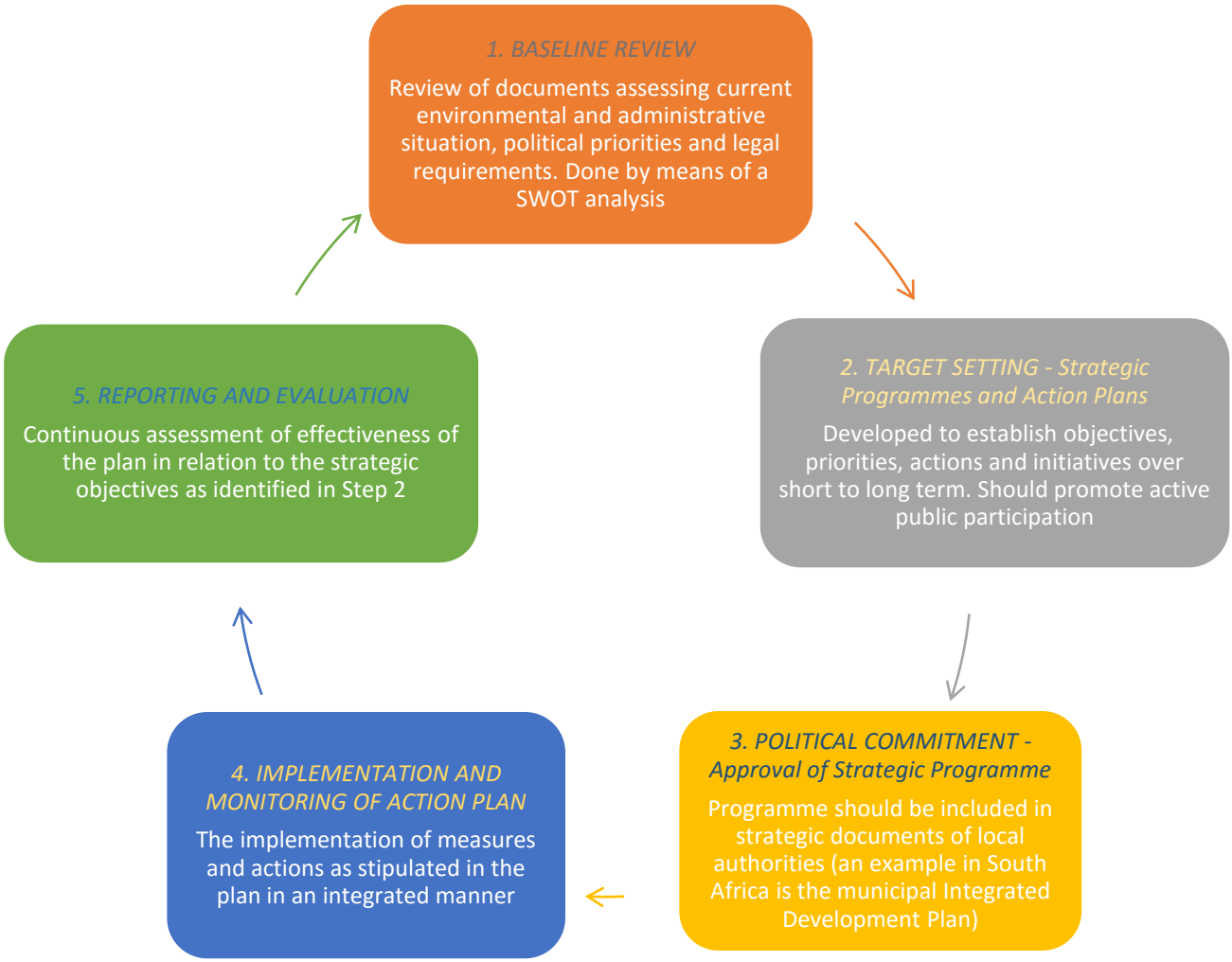


Figure 2.2: Elements in creating an effective IEMS (European Community, 2007:10)

The European Community is campaigning for IEM due to its shared experience and knowledge of IEMS and the numerous issues of international relevance which can be addressed by such a system. In Table 2.1 below, some of the improvements to the physical environment and environmental performance of local authorities are portrayed.

Table 2.1: Improvements attributable to effective integrated environmental management (European Community, 2007:10).

Nr.	Table 2.1: IMPROVEMENTS ATTRIBUTABLE TO EFFECTIVE INTEGRATED ENVIRONMENTAL MANAGEMENT
1.	Improved water quality
2.	Improvement in waste management
3.	Improved use of renewable energy and energy efficiency

4. Reduction in the emission of greenhouse gases
5. Improved air quality
6. Effective and efficient urban transport system
7. Reduction and prevention of noise pollution and conservation of quiet areas
8. Improved local governance
9. Improved land use and planning
10. Improving biodiversity management and conservation of green spaces
11. Improvement and reduction of environmental risk management
12. Adaptive environmental management

2.5 Summary

Integrated environmental management is practised internationally with the ideal of conservation and sustainable use of our natural resources at its core, irrespective of how it is applied. It is a holistic approach and inclusive of society, the environment and the economy all benefiting from products derived from our natural environment. The main focus point is the conservation of natural resources and the ideology is that strategies, management plans and programmes be designed to operate on a regional level and strive to be all-encompassing as to the stakeholders involved.

The idea of environmental management has evolved over time into a process of conservation, where natural resources are managed by means of various tools and strategies developed through a process of learning. The Thematic Strategy and the Integrated Environmental Management System are the products of these ideologies and assist government as well as the private sector in better managing our natural resources.

In the next chapter some of the local theories surrounding integrated environmental management will be perused along with an in-depth look at the various legislation and programmes surrounding this ideology will be provided.

Chapter 3: Integrated environmental management on a national level

3.1 Introduction

In this chapter a brief overview of some of the available local theories and legislation will be given in order to illustrate how they fit into sustainable development within a South African context. IEM will be contextualised according to the definition thereof as provided in the ENVIROPAEDIA (Integrated Environmental Management, 2007). The ENVIROPAEDIA defines IEM as a philosophy that differs from an environmental impact assessment (EIA) due to its primary concern being the establishment of a balance between development and the environment. The philosophy provides us with a set of guidelines and principles that directs us throughout the different stages of implementing environmental policies, processes or projects. It is used as a guideline from the conception of an idea to its realisation and finally to its conclusion.

In light of this definition, an overview will be given of the various legislation and programmes that surround IEM as well as a synopsis of the mandates given to the numerous stakeholders involved in environmental management. This will be done to illustrate the various functions cascading from the different statutes into the operational ambit of local government.

Finally, an overview of the most popular tools developed for the implementation of effective and efficient integrated environmental management will be provided, as currently utilised by various local governments in South Africa.

3.2 Theoretical background

All citizens in South Africa require clothing, housing, employment, food, energy, transport, water, education and sanitation. In addition to fulfilling this need, they still need to make provision for needs of future generations. These essential requirements are all satiated as a result of resources extracted from the natural environment, whether directly or indirectly (Department of Environmental Affairs and Tourism, 2006:3).

In South Africa, environment management is interrelated with sustainable development which was initially defined by the Brundtland Commission (1987:37) as *"…sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"*.

The Brundtland Commission (1987:37) highlights two key concepts in their definition of sustainable development, one of which is 'need', referring to the poor whose needs must be prioritised. The other concept is *"…the idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet the present and future needs".*

The National Strategy for Sustainable Development (NSSD) (South Africa, 2010a) supplements this definition by stressing the importance of having a long-term planning horizon and *"…the adoption of a development path that improves the quality of life of current generations, while leaving future generations with at least the same capacity and options for development; the importance of enhancing horizontal linkages and promoting coordination across sectors, and in particular for recognising synergies and tensions across sectors;…"* (South Africa, 2010a:8). In line with international strategies such as sustainable natural resource management (Dale et al., 2008:399), the NSSD also emphasises the importance of "…*vertical spatial linkages, so that local, provincial, national and global development efforts and governance are mutually supportive; and the role of partnership between government, business, non-government and community and voluntary organisations".* The NSSD states that the ultimate goal of this strategy is to create a sustainable society by means of sustainable development as the tool (South Africa, 2010a: 10).

According to Middleton, Goldblatt, Jakoet, and Palmer, (2011:5), sustainable development in the definition put forward by the NSSD also refers to ecological sustainability. They state that in this instance the emphasis is placed on natural resources and healthy ecosystems which is a precondition for human wellbeing. They also point out that the definition proposed by the NSSD can be interpreted as the acknowledgement of the limitations of goods and services provided by ecosystems, meaning *"…ecological sustainability acknowledges that human beings are part of nature and not separate from it"* (Middleton et al., 2011:5). The aforementioned can therefore be summarised as the adoption and execution of a development plan that allows for the attainment of suitable and justifiable social and economic goals without compromising the ecosystems or natural systems from which resources are obtained. The National Strategy for Sustainable Development and Action Plan (NSSD1) (South Africa, 2011: 1) depicts this notion by means of the following figure:

Figure 3.1: Systems approach to sustainability (South Africa, 2011:1)

The National Framework on Sustainable Development (NFSD) (South Africa, 2008b:9) states that South Africa aspires to meet the fundamental needs of its population *"... by managing its limited ecological resources responsibly for current and future generations, and by advancing efficient and effective integrated planning and governance through national, regional and global collaboration"*.

The North West Province State of the Environment Report (SOER) (Mzuri Consultants, 2002:1) states that sustainable development should form the foundation of all environmental management and planning activities. The report indicates that the maintenance of ecological processes, sensible utilisation of natural resources and preservation of biodiversity are central to sustainable development. This concept also embraces the various socio-economic dimensions surrounding the environment. Good environmental management practices in this regard promote the accumulation of relevant and viable information that will inform public debate, add to the policy-making process, benefit and assist decision-making and eventually endorse sustainable development in South Africa (Department of Environmental Affairs and Tourism, 2006:9).

The South African Environment Outlook Report (Department of Environmental Affairs and Tourism, 2006:9) shows that there has been significant advances over the last decade in the field of environmental management. Attention to South African environmental fiscal reform, energy efficiency and renewable energy, and cleaner production which adheres to various environmental norms and standards are on the increase, which point to the fact that the country is gradually waking up and becoming aware of its environmental obligation.

Opposing this statement, the report also enunciates the increasing pressure on our natural resources and voices its concerns over some areas of our environment which have deteriorated and are in dire need of urgent and dedicated attention (Department of Environmental Affairs and Tourism, 2006:9). Despite progress being made, South Africa is consuming its natural capital at a rate that exceeds the environmental recovery rate.

Examples provided by the report include:

- an increase in pollution and deteriorating air quality
- an increase in unsustainable natural resource exploitation
- disruption of ecosystem functionality
- declining water quality and aquatic ecosystems

- land degradation

Adding to these problems are our inability to satisfy the basic needs of the current generation, as there is continuous increase of the unemployment rate, along with economic inequality as poverty remains deeply engrained in our society. The report urges society, which in this instance includes government, to act decisively by means of sound environmental management as this will safeguard South Africa's economy and society. Local municipalities are at the grassroots level and are pressurised due to shrinking budgets and resources and an increase in the demand for quality basic services. It is also municipalities who have various legal obligations to the social, economic and natural environment. Some of the positive and negative pressures on municipal environmental performance are depicted in figure 3.2 below (Middleton et al., 2011:21).

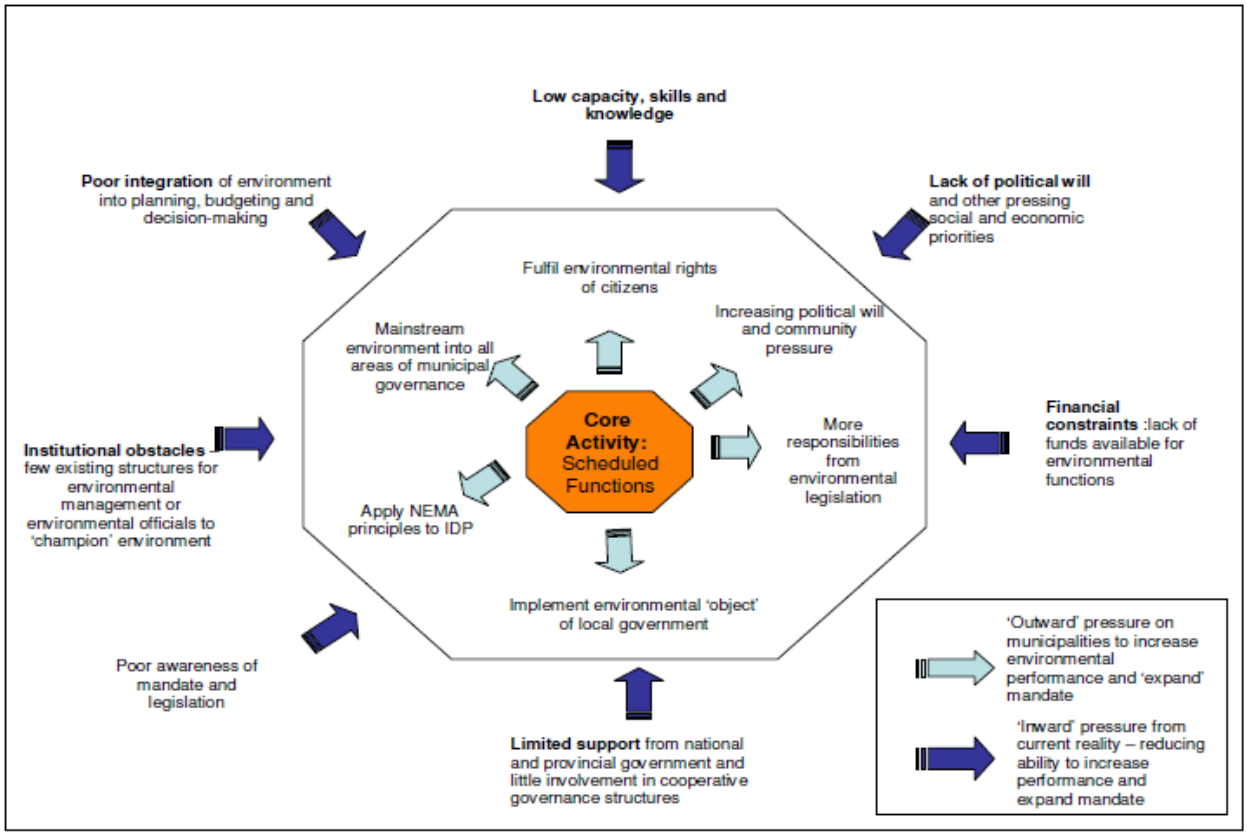


Figure 3.2: Positive and negative pressures on municipal environmental performance (Middleton et al., 2011:21)

Since 1994, the legal and policy framework surrounding the environment has undergone significant changes in strengthening local government's ability to perform environmental management functions (Department of Environmental Affairs and Tourism, 2006:3). Although legislation assigns specific environmental functions to local government, they in most cases do not have designated environmental sections nor personnel to perform these statutory responsibilities. An example of a specific environmental function as provided for in Section 9 of NEM: WA (South Africa, 2004d: 24), includes the delivery of waste management services which include waste removal, storage and disposal. Local government also does not have the skills and resources to incorporate environmental considerations into development planning (Department of Environmental Affairs and Tourism, 2006:16). In light of the above, the onus falls on statutes to present local government with a regulatory guideline and framework on how to proceed with the implementation of the various functions assigned to them by environmental legislation.

The Department of Environmental Affairs and Tourism (DEAT) in 2004 released a series of guidelines, one being the Integrated Environmental Management Information Series (South Africa, 2004a) in which the concepts, tools and principles of IEM are described. It suggests that the South African term 'integrated environmental management' is comparable with the international philosophy of 'environmental management and assessment'. The department also developed a set of principles to support the integrated environmental management tools which were developed to support local government, amongst others.

3.3 Policy and institutional frameworks

In order to compile an environmental strategy for local government, the relevant legislation which governs that specific sphere of government has to be consulted. In this instance the relevance of these policies and legislation will be explained as to how they fit into the ambit of environmental management. Firstly, Spatial Planning Land Use Management Act (South Africa, 2013:15) provides for principles that should be applied to spatial planning, land development and land use management. One of these principles in Section 7 (b) (iii) which opens the doors for environmental management. is *"…the principle of spatial sustainability, whereby spatial planning and land use management system must – (iii) uphold consistency of land use measures in accordance with environmental management instruments;*". The act also allows for the inclusion of environmental instruments into SDFs in Section 12 (1) (m). As the SDF will feed into the IDP all instruments prescribed for local authorities through

environmental legislation will be reflected in the municipal IDP by way of the SDF. For the purpose of this study, the prescribed instruments will include a Coastal Management Programme (CMP), Air Quality Management Plan (AQMP), Climate Change Policy, Integrated Waste Management Plan (IWMP), Water Service Development Plans (WSDP) and an SDF, all of which are functions assigned to local government by various statutes. These plans are also interrelated and dependent on each other.

Uninformed decisions or actions by municipalities can bring about environmental degradation which was partly dealt with under the Environmental Conservation Act (South Africa, 1989) (ECA). This act was primarily inadequate for environmental management, as it was never really implemented nor acted upon as envisioned, and was to some extent replaced and repealed by the National Environmental Management Act (South Africa, 1998b) (NEMA). Some of the provisions of ECA remain, especially those related to environmental impact assessments (EIAs). Functions of local and district municipalities relating to sustained environmental protection are mandated in Section 156 of the Constitution (South Africa, 2008c:90) which empower these entities to pass municipal by-laws to regulate the use of public amenities, including the natural environment or products thereof.

'Environmental protection' and 'conservation' are moderately new concepts in South African law, but fortunately, as mentioned above, the foundation for environmental protection has to some extent been provided for in the Constitution (South Africa, 2008c:90). The Constitution dictates that all South African citizens have the right to an environment that is not detrimental to their wellbeing *"...and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development…".* The Constitution also states that *"The state must take reasonable legislative and other measures, within its available resources, to foster conditions which enable citizens to gain access to land on an equitable basis".* In this instance the Constitution provides the leeway for subsequent environmental legislation to address issues of accessing private and public property or obtaining right of way across private property. Since the promulgation of the Constitution, a multitude of statutes dealing with environmental conservation and management have been enacted throughout all three spheres of government. Section 152(d) of the Constitution mandates municipalities through a range of policies and legislation to deal with environmental conservation and management. It is these policies and legislative frameworks that provides the leeway for municipalities to take on a facilitator's role, where they do not have

the resources to provide a service, they can identify the relevant resource and apply it to where needed. It is customary for municipalities to combine their financial and other resources towards those cross-boundary projects and programmes imposed on them by national and provincial legislation. Section 88 of the Local Government: Municipal Structures Act (South Africa, 1998c:37) makes provision for district and local Authorities to cooperate, assist and support each by means of contributing resources in order to attain specific and joint objectives. As we progress in the study, it will become apparent why this is important when Eden District Municipality's role in providing effective support to the B-municipality is scrutinised.

The Demarcation Act (South Africa, 1998a:10) supports the Local Government: Municipal Structures Act (South Africa, 1998c) in that it dictates that municipal boundaries (Section 24) be established in such a fashion as to ensure the provision of services to communities in a sustainable and equitable manner. This provides for the legislative foundation on which district and local B-municipalities can agree to joint undertakings (such as a CMP) which prove to be more cost effective for all entities involved.

All laws identified above act as catalysts and supportive legislation for the statutes which actually govern contemporary environmental management. Most of our current environmental legislation is constituted under the National Environmental Management Act of South Africa (South Africa, 1998b) (NEMA). Chapter 5 of NEMA (South Africa, 1998b:34) specifically deals with integrated environmental management and promotes the application of environmental management tools. It also states that due consideration needs to be given to all environmental attributes in decision-making and management processes when there might be a significant impact on the receiving environment. Section 28 offers a directive which states that any municipality that causes environmental degradation must take reasonable measures to rehabilitate the damaged areas. Municipalities by implication play an essential role in environmental protection and, for the purpose of this study, specifically environmental management. The Local Government: Municipal Systems Act (South Africa, 2000:20) (Section 4(2)(d)) requires the councils of local authorities to provide services in an environmentally sustainable manner for their respective areas of jurisdiction or as far as their administrative and financial capacity allow them. 'Environmentally sustainable manner' for all intents and purposes can include environmental protection, which is also mandated under other legislation.

Under the National Environmental Management: Protected Areas Act (South Africa, 2003a: 9) natural landscapes and seascapes can be declared as protected areas if the areas are

representative of our country's seascapes, which include coastal zones. Municipalities are therefore obligated to identify municipal land which might acquire protected area status; this can include the coastal zone and is also applicable to critical biodiversity areas (CBAs).

The National Environmental Management: Biodiversity Act (South Africa, 2004c:46) (NEM:BA) in Section 48(2) stipulates that municipalities should align their IDPs with the National Biodiversity Framework and bioregional plans, which in the case of Hessequa Municipality is a Biodiversity Sector Plan for Hessequa and Mossel Bay Municipalities (SANBI, 2010). This plan outlines all important biodiversity corridors and regions within the municipal area. In general, the said act guarantees the legislative foundation for the protection of endangered ecosystems and permits should be obtained before any protected species can be damaged or removed from its natural environment. This sector plan includes coastal vegetation but ends on the primary dunes adjacent to the high-water mark.

As with NEM:BA, the National Environmental Management: Air Quality Act (South Africa, 2004b) (NEM:AQA) regulates the air quality management in South Africa. NEM:AQA commenced on the 11 September 2005 but only came into full operation on 1 April 2010 when the Atmospheric Pollution Prevention Act (South Africa, 1965) (APPA) was repealed. The NEM:AQA (2004 amended 19 May 2014: 14) dictates (Chapter 2(8)) that the national framework for air quality management should "*...establish national standards for municipalities to monitor -*

(i) ambient air quality; and

(ii) point, non-point and mobile source emissions;"

This is a function that is provided for by national legislation and the same statute provides provincial government with the mandate to regulate the performance of local government. This is not the only case where the implementation of national legislation on local authority level is monitored by province, another example is the implementation of the National Environmental Management: Integrated Coastal Management Amendment Act (South Africa, 2014) (ICMA).

This act mandates municipalities to compose a Coastal Management Plan (CMP) and offers specific definitions to coastal public access land, coastal public property, and coastal protection zones with guidelines on how it should be determined. Accompanying ICMA (South Africa, 2014) the User-friendly guide to the Integrated Coastal Management Act of South Africa (Celliers, Breetzke, Moore & Malan, 2009) provides a better understanding of how the act

should be interpreted. This guide facilitates the reader with a less legal writing style and broader explanations of the relevant data and is therefore essential to the context of this thesis. The document stresses the importance of utilising the natural coastal resources within the coastal zone in a way that is socially and economically justifiable without being ecologically unsustainable.

The ICMA (South Africa, 2014:58) (Section 42[4.e]) allows for a Spatial Development Framework (SDF) (Hessequa Municipality: Draft Spatial Development Framework, 2012) and an Integrated Development Plan (IDP) (Hessequa Municipality: Integrated Development Plan, 2015) to include the aspects of coastal management that the municipality deems important to be integrated into these plans. In this instance the Western Cape Land Use Planning Act (Western Cape, 2014a: 11) also makes provision and serve as a guideline for local authorities to develop their respective SDFs. It is therefore imperative that IDPs are aligned at local and district level and that local SDFs are aligned with their provincial and national counterparts. These documents are not only vertically aligned through different spheres of government, but horizontal alignment is as important. This means that if environmental protection and management are objectives of various legislation, then it should be reflected in the local SDF and IDP.

Also reflected in the IDP of all local authorities is an Integrated Waste Management Plan (IWMP), which is a statutory requirement of the National Environmental Management: Waste Act (NEM:WA) of 2008. The core goal of the act is to transform current methodologies of waste management, which includes the collection and disposal of waste to a sustainable practice focusing on waste avoidance and environmental sustainability. Implementation of the IWMP will be by means of municipal by-laws and in accordance to an implementation schedule. In the context of this thesis, the IWMP is a tool to identify current needs and acts as a guide to achieve sustainable waste management. As waste management has economic, social and environmental impacts, the act seeks to establish strategies, norms and standards which will assist in the establishment of best waste practices within the ambit of cooperative governance. In practice on municipal level, the act pursues the ideal of reducing, re-using and recovering waste, which includes green, household and industrial waste. Strategies and programmes relating to this ideal are in most cases found in Integrated Waste Management Plans. The second-generation Hessequa Municipality Integrated Waste Management Plan (Hessequa Municipality: Integrated Waste Management Plan:2013) is horizontally in line with that of its

neighbouring local municipalities and vertically aligned with the waste management plan on district level.

3.4 Integrated environmental management tools

IEM has evolved into a philosophy and a set of principles that are supported by a range of management tools with which it strives to attain its ultimate objective, being that of sustainable development. The Integrated Environmental Management Information Series (South Africa: 2004a:9), as compiled by DEAT, proposes a range of principles which is based on the review and a combination of environmental policies and philosophies such as the principles provided by NEMA (South Africa, 1998b) and other sources. These principles include:

1. Accountability and responsibility
2. Adaptive
3. Alternative options
4. Community empowerment
5. Continual improvement
6. Dispute resolution
7. Environmental justice
8. Equity
9. Global responsibilities
10. Holistic decision-making
11. Informed decision-making
12. Institutional coordination
13. Integrated approach
14. Polluter pays
15. Precautionary approach
16. Rigour
17. Stakeholder engagement
18. Sustainability
19. Transparency

Based on these principles, the department proposed a suite of tools which can be used together, in parallel or individually. The choice of tool depends on the need of the user and if to be utilised for an activity, the lifecycle of such activity is also considered. Some of the tools proposed are relatively new in the sense that they are still being tested or created to cater for the specific

needs of South Africa, while other tools are tested in both the international and national arena. The list of tools below are not all-inclusive as only those researched, developed and prescribed by the department for implementation in South Africa are listed.

3.4.1 Tools recommended by the DEAT (South Africa, 2004a: 11 - 14).

a. **Environmental impact assessment** – Tool used for predicting the impact (positive and negative) of an activity on the receiving environment. This tool is site and project specific and does not focus on strategic issues except when required by the government.

   - **Screening** – Determines whether a proposed activity requires an environmental assessment.
   - **Stakeholder engagement** – Engaging in continuous discussions between stakeholders during the life cycle of an activity. This tools provides for stakeholder input in the decision-making process.

b. **Life-cycle assessment** – The monitoring and evaluation of the environmental impacts of a project throughout its life cycle. This process is usually governed by a set of standards.
c. **Environmental auditing** – The process of testing the environmental performance of organisations against requirements set by the government or industrial body. The requirements are usually defined in legislation and policies.
d. **Environmental accounting** – This tool is used to identify, calculate and allocate the direct and secondary environmental cost and benefits of ongoing projects.
e. **Technology assessment** – Examines the effects and impacts on society when a new technology is introduced or when old technologies are modified.
f. **Cumulative effects assessment (CEA)** – This tool should be used in conjunction with other IEM tools as it contributes to holistic decision-making. It identifies and evaluates the impacts of multiple actions.
g. **Cost-benefit analysis** – Used by decision-makers to rank, accept or reject projects according to the economic cost and benefits.
h. **Environmental economics** – Assists in identifying the cost and benefits not taken into account by economic agents, such as external cost.
i. **Ecological and environmental foot-printing** – *... provides a measure of how much bio-productive land and water area a population would require to sustainably produce*

all the resources it consumes and to absorb all the waste it generates, using the available technology (South Africa, 2004a:13).

j. **Risk assessment** – *... includes as a minimum the definition of the probability and severity of an undesired effect, expressed in the context of associated uncertainties* (South Africa, 2004a:13).

k. **State of the environment reporting** – This type of reporting is used to monitor changes in the environment, the causes behind the changes and to identify responses to these causes.

l. **Indicators** – Evaluate and monitor the changes in the environment and whether activities such as developments are operating in a sustainable fashion. One of the objectives of indicators is to act as an early warning system when activities become unsustainable or unstable.

m. **Sustainability analysis** – The objective of this tool is to evaluate the extent to which an activity is in alignment with the principles of sustainable development and how it contributes thereto.

n. **Strategic environmental assessment (SEA)** – This tools assesses the impact of decisions made at programme, policy or planning level. SEA also attempts to evaluate the constraints and opportunities placed on developments by the environment.

o. **Eco-labelling** – Refers to a status that may be bestowed on a product or activity due to it attaining an acceptable level of environmental impact.

p. **Scenario analysis** – A tool that assesses the future of present-day problems found in the environment or problems that may emerge in the future.

q. **Sustainability reporting –** This is the public account of an organisation regarding its economic, social and environmental performance regarding its operations, products and services.

r. **Environmental Management System (EMS)** – This system acts as guideline for organisations as to how they should manage the environmental impacts of their activities, products and services.

s. **Environmental Policy** – This tool should be designed in conjunction with an EMS as it portrays the aims and principles associated with actions of an organisation in respect of the receiving environment. The organisation's environmental commitment is usually based on this policy.

t. **Environmental Management Plan (EMP)** – This tool is also typically part of an EMS as it provides guidance as to how activities should be managed in order to enhance the benefits to the environment and minimise the impacts thereof.

3.4.2 Additional tools

Environmental Management Framework (EMF) – Provision is made for this tool as a regulatory instrument in Chapter 6 of NEMA (South Africa, 1998b: 40). An EMF is a proactive decision-support tool that is used as a strategic planning instrument as it provides for the coordinated management of information about specific geographic areas.

3.5 Summary

In this chapter a brief overview of some of the available local theories of integrated environmental management was given in order to illustrate how it fits into sustainable development within a South African context. IEM was contextualised according to the definition thereof as provided in the ENVIROPAEDIA (Integrated Environmental Management, 2007). In light of this definition, a summation was provided of the various legislation and programmes that surround IEM, as well as a synopsis of how the numerous stakeholders involved in environmental management are mandated. This was done to illustrate the various functions cascading from the different statutes into the operational ambit of environmental management at local government level. In addition, an overview was provided of the most popular tools that are currently used by the various local authorities for the implementation of integrated environmental management.

In the next chapter two of the tools listed under 3.4 above, will be analysed in order to establish their relevance to a local authority.

Chapter 4: IEM tools – Environmental Management Systems and Environmental Management Frameworks in South Africa

4.1 Introduction

In the previous chapter a brief overview was given regarding the most popular IEM tools available and utilised in South Africa, as recommended by the former Department of Environmental Affairs and Tourism (DEAT) which is now the Department of Environmental Affairs (DEA). From these tools, the two most relevant to this study were selected, as they can be integrated into each other and can be best applied to address the shortcomings at Hessequa Municipality, with regards to environmental decision-making. These two are an EMS and an EMF. Discussions surrounding the EMS will include the definition of such a system, elements guiding the tool, the basics thereof and will also provide a brief overview of the ISO 14001 international standard. The analysis of the EMF will entail a definition of the framework, the legal standings and purpose thereof, as well as an overview of how such a tool will be structured.

4.2 Environmental Management System

4.2.1 Definition

Rendell and McGinty (2004:5) define an EMS as a systematic approach for integrating environmental priorities and goals into the daily operations of an organisation. The EMS is a process of formulising the various processes surrounding environmental requirements and which is usually deemed as inherent to an organisation's daily operations by documenting it. The benefit is that it ensures consistency over time, which is transferred to employees and ensures environmental benefits in the long term. Barbu, Negulescu and Barbu (2012:59) state that an EMS *"... refers to the management of an organisation's environmental programmes in a comprehensive, systematic, planned and documented manner. It includes the organisational structure, planning and resources for developing, implementing and maintaining policy for environmental protection"*.

The European Parliament (as cited in Barbu et al., 2012:59) defines EMS as "... *a set of processes and practices that enables an organisation to reduce its environmental impacts and increase its operating efficiency"*. The British Standard Institute (as cited in Barbu et al., 2012:60) offers the following alternative definition for what they proclaim an EMS to

be: *"... the organisational structure, responsibilities, practices, procedures, processes and resources for determining and implementing environmental policy"*.

Barbu et al. (2012:6) also state that the idea *"...of an environmental management system evolved in the early nineties and its origin can be traced back to 1972 when the United Nations (UN) organised a Conference on the Human Environment in Stockholm and the United Nations Environment Programme (UNEP) was launched"*. It was these initiatives that resulted in the development of the World Commission on the Environment and Development (WCED) and also the endorsement of the Montreal Protocol and Baseline Convention.

It should be noted that various types of Environmental Management System models or conceptual frameworks are available, but in this instance this thesis will explore the model that is based on the ISO 14001 International Standard (ISO 14001) as it is the most widely used. In order for this study to be all-inclusive, the most popular models are listed in Table 4.1.

Table 4.1: EMS models (Rendell & McGinty, 2004:5)

EMS MODELS	
1.	ISO 14001 International Standard
2.	European Eco-Management and Audit Scheme (EMAS)
3.	EPA National Enforcement Investigation Centre (NEIC) "Compliance Focused" EMS (EAP NEIC Compliance Focused EMS)
4.	Responsible Care model which was developed by the American Chemical Council (ACC Responsible Care)
5.	National Biosolids Partnership Environmental Management System (this is a variation of the ISO 14001 International Standard)
6.	"Seven Key Compliance Programme Elements" developed by the US Department of Justice (DOJ 7 Key Elements)
7.	DEP College and University EMS and Best Practices Manual (this is a variation of the ISO 14001 International Standard)

4.2.2 The basics of an EMS

The three predominant reasons for developing an EMS according to Ralborn, Joyner and Logan (1999:89) are *"... institutional pressures, market demand, and management control"*. The first two refer to external pressures and the latter to a strategic management choice in order to gain better control within the organisation.

The following implementation plan applies when an EMS is developed for an organisation. It should be noted that these actions are done according to phases with a schedule associated with each phase (Rendell & McGinty, 2004:29):

a. Phase 1: Refers to the development of a policy and commitments of the organisation.
b. Phase 2: Planning and information management (identification of environmental issues and mitigation actions, as well as the identification of the available and required resources).
c. Phase 3: Refers to the development of the EMS manual, training of staff and stakeholders as well as the implementation of the EMS.
d. Phase 4: Continuous monitoring, assessment and improvement of the system.

Common to all environmental management systems is that it focuses on processes and practices which revolve around "*Plan, Do, Check, Act*" (PDCA) (Barbu et al., 2012:60) as seen in the figure below:

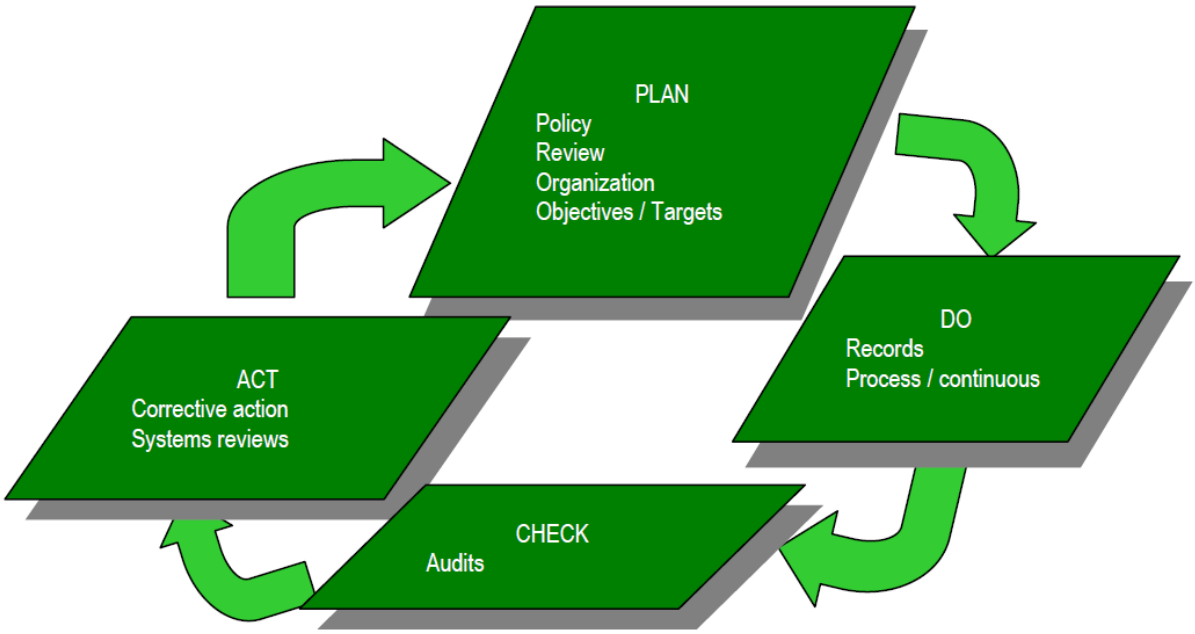


Figure 4.1: The five steps of an EMS model (Barbu et al., 2012:60)

4.2.3 Elements guiding an EMS

ISO 14001 provides for the steps as portrayed in Figure 4.1 to be broken down into 17 elements which will assist in the development of the system (Rendell & McGinty, 2004:8; Jiang & Bansal, 2003:179; Davies & Webber, 1998:56).

1. Environmental policy – this policy serves as a commitment from top management that they will abide by the statutes that regulate the environment and will potentially improve their environmental performance.
2. Environmental aspects – identification of all activities within the organisation that might directly or indirectly impact the environment.
3. Legal requirements – refers to the legislative mandates that the organisation has to comply with.
4. Objectives and targets – organisations develop goals in order to improve their performance regarding the specific activities that they are associated with. These objectives and targets are developed in order to meet these goals.
5. Environmental management programmes – defines the methods utilised in order to meet the objectives and targets.
6. Structures and responsibilities – identifies the authority structure that is in place and also assigns specific responsibilities to specific individuals.
7. Training, awareness and competence – defines the training and minimum competence levels necessary to ensure that environmental risks are managed, as well as stipulating the training that is required for specific individuals and the frequency of training.
8. Communications – outlines how internal and external communication pertaining to environmental issues should be handled.
9. EMS documentation – refers to a structured document system which can facilitate both review and auditing. It also defines the structure of an EMS.
10. Document control – identifies the manner in which EMS documentation should be controlled and maintained.
11. Operational control – refers to the development of standard operating procedures (SOP), which is helpful for handling environmental incidents.
12. Emergency preparedness and response – refers to the maintenance of a minimum level of preparedness and the procedures that need to be followed in case of environmental emergencies.

13. Monitoring and measurement – defines how organisations monitor their environmental performance, what procedures are used during this activity, how often it is measured and also the data sources used.
14. Non-conformance, corrective and preventative action – how incidents are investigated and corrected.
15. Records – refers to the way in which documents related to EMS are handled and controlled.
16. EMS audit (internal) – gives guidance on how an organisation should audit its environmental performance (Davies & Webber, 1998:56).
17. Management review – describes how performance reviews should be coordinated by top management and how they should drive the process of continuous improvement.

4.2.4 ISO 14001 international standard

ISO 14001 by itself is a voluntary environmental standard which is utilised as an instrument of environmental policy and management (Darnall & Edwards, 2006:301). The objective of this programme is to encourage participating organisations to embrace environmental stewardship practices that will ensure they operate within the ambit of environmental law. This programme was not developed for government only and can also be adopted by private organisations that operate within the economic or social ambits of our society (Darnall & Carmin, 2005:72).

The programme is regulated by the International Standards Organisation (ISO) that is based in Geneva, Switzerland and is a non-governmental international policy organisation that formulates technical and management standards. Membership consists of those organisations that are charged with developing national standards within the various sections of our society. In January 2003 they already produced 13 700 standards (Mattli & Bürhe, 2003:7). ISO 14001 is similar to ISO 9000 quality management in the sense that both sets of standards apply to the process of production rather than the product itself. Both programmes are audited according to the ISO 19011 audit standard (Barbu et al., 2012: 61).

The idea for the development of ISO 14001 Environmental Standards originated during the Earth Summit in 1992 (United Nations Conference on Environment and Development). Partaking in the development of the idea were various businesses, government entities as well as international bodies. The ISO 14000 series was introduced in 1995 and

subsequently, in 1996, ISO introduced the first edition of ISO 14001. In 2004 a second edition of ISO 14001was published in order to update the standard. The ideal was to utilise the expertise and credibility of ISO in order to gain international acceptance of the set of standards (Potoski & Prakash, 2013).

The rationale for the development of ISO 14001 lies in the relationship between the impact on the environment and international trade. The participating bodies at the Earth Summit identified the key issues surrounding environmental challenges and one of them was the lack of appropriate regulatory approaches. The previous regulatory structures did not allow for businesses and organisations to invest in environmental stewardship nor for the acknowledgement of their environmental responsibilities. Although voluntary, the approach provided by ISO through ISO 14001 broadens the scope of environmental governance and complements existing regulating structures (Potoski & Prakash, 2013: 275). It can therefore be deduced in this instance that ISO 14001 basically acts as a compliance tool which ensures that those making use of the system operate within and above the standards set by environmental statutes (Brehm & Hamilton, 1996).

4.2.5 Benefits of ISO 14001

One of the foremost benefits of ISO 14001 is that it requires a written environmental policy which is sanctioned by top management in the case of a business or the council in the case of a municipality. ISO 14001 makes provision for quantifiable environmental targets with criteria against which performance is regulated by means of reviews (Winter & May, 2001).

Other benefits of ISO 14001 include the following (Potoski & Prakash, 2013: 275 & 276):

a. Commits participating institutions to make use of the best available environmental technologies.
b. To assess the environmental impacts associated with their actions or operations.
c. Can be utilised to develop environmental stewardship policies for monitoring beyond what is required by environmental regulations.
d. Used to establish programmes with which to train employees in the utilisation of an EMS.

Davies and Webber (1998:58) provide the following benefits:

a. Better economic performers (Ralborn et al., 1999:90).
b. Overall improvement in their environmental management.

c. Systematic and continuous monitoring and assessment with the associated corrective actions ensure unremitting improvement in financial, environmental and operational performance.
d. A growing confidence amongst middle management and staff regarding the fulfilment of their environmental responsibilities.
e. Improved transparency with regards to their operations, in reporting as well as management.
f. Reduction in environmental incidence or potential incidences.
g. Improvement in environmental management will flow over into other management aspects of the organisation.

Darnall and Edwards (2006) state that unlike other comparable voluntary programmes, the ISO 14001 requires initial audit certification and annual audits to ensure that the EMS of the relevant organisation adheres to the requirements of ISO. Both these audits have to be conducted by third-party auditors who in turn have to obtain accreditation from the local standards body that is affiliated with ISO. The cost associated with the implementation of an EMS and annual auditing can amount to $100 000 per organisation (Darnall & Edwards, 2006), meaning that ISO certification is an expensive exercise especially for South African-based organisations and more so for local government.

4.2.6 ISO 14001 EMS model implementation

This model is based on the presumption that it will form part of the overall management layer of an organisation, which includes the organisational structure, day-to-day practices, planning activities, procedures, responsibilities, resources and processes for achieving, developing, reviewing, maintaining and implementing the environmental policy.

The EMS cycle as prescribed by ISO comprises of five sections, almost similar to the EMS model provided by Barbu et al. (2012), which is (Rendell & McGinty, 2004:7):

Figure 4.2: ISO 14001 EMS model (Rendell & McGinty, 2004: 7)

a. Environmental policy – Establishes the position of the organisation and communicates its commitment to the environment.
b. Planning – Identification of environmental requirements and issues within and surrounding the organisation as well as defining the actions and resources needed to attain its economic goals and actively sustain its environmental policy.
c. Implementation and operations – A description of the programmes, procedures and responsibilities that are required to implement key actions needed to attain goals.
d. Checking and corrective action – Points to the continuous monitoring and evaluation of the effectiveness of those environmental management actions referred to above.
e. Management review – Refers to the evaluation of the system as a whole by top-level management in order to establish the overall effectiveness thereof and to sustain continual improvement of the said system in order to achieve the goals of the organisation.

4.3 Environmental Management Framework

4.3.1 Definition

a. National level: DEA defines (South Africa, 2012:5) an EMF as *"…the study of the biophysical and socio-cultural system of a geographically defined area to reveal where specific land uses may best be practised and to offer performance standards for maintaining appropriate use of such land".*

The EMF Regulations (South Africa, 2010b) defines an EMF *"…means a study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific land uses may be best practiced and to offer performance standards for maintaining appropriate use of such land;"*

b. District municipal level: A tool to support decision-making within the jurisdiction of a district municipality in order to facilitate appropriate and sustainable development. The tool integrates policies and frameworks as well as aligns legislative mandates in order to streamline decision-making and ultimately improve cooperative governance (Waterberg District Municipality, 2010:1).

c. Local government level: The EMF *"…is a municipal strategic environmental management policy that responds to and complies with the relevant statutes and directives"*. (Stellenbosch Environmental Management Framework, 2013:2). The EMF overlaps with the SDF and is therefore integrated and serves as a policy to direct sustainable integrated land-use activities according to the municipality's sustainability objectives, strategy with which to enhance the wellbeing of people and environment (Stellenbosch Environmental Management Framework, 2013:2). Drakenstein Municipality (2012: 3) defines an EMF as a tool that supports environmental decision-making and which can be utilised by all authorities whose decisions will have an impact on the environment.

4.3.2 Legal standing, purpose and structure of an EMF

4.3.2.1 The legal context for an EMF

a. South African Constitution, 1996 (Act 108 of 1996) (ed. 2008)

The Constitution (South Africa, 2008c:7) in Section 24 dictates that all South African citizens have the right to an environment that is not detrimental to their wellbeing *"...and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development…".* Section 152(d) of the Constitution mandates municipalities through a range of policies and legislation to deal with some aspects of environmental conservation and management and these subsequent legislative mandates pave the way for municipalities to provide relevant environmental services as and when required.

b. National Environmental Management Act, 1998 (Act 107 of 1998)

Chapter 5 of NEMA (South Africa, 1998b: 34) specifically deals with integrated environmental management and promotes the application of environmental management tools. It also states that due consideration needs to be given to all environmental attributes in decision-making and management processes; when there might be a significant impact on the receiving environment. Section 24(3) also states that *"The Minister, or an MEC with the concurrence of the Minister, may compile information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account by every competent authority"*.

c. Environmental Management Framework Regulations (2010b)

"2. (1) The purpose of this Part is to provide (a) for the Minister or MEC with concurrence of the Minister to initiate the compilation of information and maps referred to in Section 24(3) of the Act specifying the attributes of the environment in particular geographical areas;

(b) for such information to inform environmental management; and

(c) for such information and maps to be used as environmental management frameworks in the consideration, as contemplated in Section 24(4)(b)(vi) of the Act, of applications for environmental authorisations in or affecting the geographical areas to which those frameworks apply". (South Africa, 2010b:4).

d. Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) (SPLUMA)

"7. The following principles apply to spatial planning, land development and land use management:

(b) (iii) uphold consistency of land use measures in accordance with environmental management instruments;

12. (1) The national and provincial spheres of government and each municipality must prepare spatial development frameworks that –

(m) take cognisance of any environmental management instruments adopted by the relevant environmental management authority;" (South Africa, 2013:18).

4.3.2.2 Purpose of an EMF

Drakenstein Municipality proposes that an EMF should provide:

a. a framework that can facilitate sustainable development for areas within their municipal jurisdiction;

b. a decision-support tool against which proposed development applications can be appraised;
c. guidance to applicants, consultants and other professionals pertaining to land-use related applications within the environment and planning fields;
d. support other authorities in their planning and decision-making processes especially when there are concerns about land use and natural resources;
e. Provide a platform for cooperative governance in respect of land use and resource use planning and development.

4.3.2.3 Structure of an EMF (Report)

It should be noted that each EMF has a different structure and that the structure provided in the EMF Guideline document (South Africa, 2012:19) acts as a guide only. One of the leading influences in this regard is the context of each EMF, which is determined by (South Africa, 2010b: 6):

a. The environmental attributes of each area, which differs according to nature, scale and type;
b. The nature of development pressures in the area;
c. To what extent cooperative government is required; and
d. Conservation status of sensitive areas.

The EMF of the Drakenstein Municipality (2012: 7) refers to regulation 3(3) of the EMF Regulations (2010b) which states that in addition to the context of each EMF, the following factors also needs to be considered as they will play a major role in determining the structure of the report:

1. The current state of the environment;
2. The desired state of the environment; and
3. How the desired state will be achieved.

Considering the influencing factors above, the EMF Guideline document (2012:19) proposes that *"…an EMF must contain the following:*

- *An identification of the area – whether by map or otherwise;*
- *A specification of the environmental attributes in the area, including sensitivity, extent, interrelationship and significance of the attributes;*
- *A description of the environmental priorities in the area;*

- *An indication of the kinds of developments or land uses that would have a significant impact on those attributes and those that would not;*
- *An indication of the kinds of developments and the land uses that would be undesirable in the area or specific parts of the area;*
- *An identification of information gaps;*
- *An indication of a revision schedule for the environmental management framework; and*
- *Any matters specified by the Minister or MEC."*

4.4 Critical analysis of an EMS and EMF

It should be noted that with the implementation of an EMS the underlying presumption is that the municipality will have the resources to fulfil the administrative and monitoring requirements of this system. Not all municipalities have the capacity to incorporate an EMS into their system. Another aspect of the EMS is that the objectives that is determined and monitored against is done by the organization in question. This means with the exception of what statutes dictate, a municipality can set itself very low environmental objectives, which can be detrimental to the environment. Also the EMS does not require stringent public participation and the municipality, for the purpose of this study, does not need to make the monitoring results public. In conclusion, third party affiliation of an EMS is a costly exercise and for a local authority which is already struggling to fulfil its statutory obligations this might be an unattainable goal.

Implementation of an EMF, just as with an EMS presumes that the integrated communication technology of the municipality will be able to handle the additional information that is fed into the network. For an EMF to be properly incorporated into the operational ambit of a municipality, it has to have the necessary hardware and software, as well as the resources to keep the information on the framework relevant. Maintaining this framework can be a costly exercise, especially in the initiation phase.

4.5 Summary

It can therefore be concluded that with the relevant capacity and correct implementation both an EMS and EMF are useful tools in the environmental management and planning profession. An EMS can assist organisations and especially municipalities to conform to their moral environmental obligations. Although the system is not a requirement under South African law, it does bind those parties affiliated with these types of systems; to such an extent that they are

obliged to operate within the ambit of environmental law. An EMF does have a legal mandate and although it is not an explicit environmental tool it is practical and can be utilised in an interactive manner by most of the directorates within a local government setup. With the results and findings of chapter 4 in mind, the next chapter will focus on Hessequa Municipality in order to establish the extent to which it conforms to environmental statutes and derive the municipality's environmental management performance against how it adheres to legislation, accordingly.

Chapter 5: Hessequa Municipality

5.1 Introduction

Hessequa Municipality, with its limited resources and vast area of jurisdiction with a unique as well as diverse floral and faunal diversity which bestows a great responsibility on the local authority, will be the subject of this chapter. A background pertaining to its location, geography and demography will be provided. In order to understand the context of this chapter, a brief overview will be provided as to the vision and goals of the Hessequa municipal council, which will demonstrate how the local authority strives to be compliant to relevant environmental statutes and to both protect and improve its natural environment.

A brief overview will also be provided of the various legislation which provides the legislative backbone of local authorities. In order to supplement these statutes, the mandates conferred by environmental legislation will also be described and a checklist will be provided to demonstrate the extent to which Hessequa Municipality is compliant with these directives. In order to sketch a comprehensive picture of the current environmental functions performed by the municipality, the main environmental management issues affecting service delivery in Hessequa Municipality will be discussed.

5.2 Background

Hessequa Municipality is situated in the Southern Cape, which is part of the Garden Route and falls under the ambit of the Eden District Municipality (EDM). The municipal western boundary is 320 kilometres from Cape Town on the N2 and the municipal area falls between Swellendam Municipality (western boundary) and Mossel Bay Municipality (eastern boundary) (Hessequa Municipality, 2015). The coastal town of Witsand lies adjacent to the Breede estuary, which

Figure 5.1: Eden District Municipality (Hessequa Municipality, 2015:7)

marks the western boundary of the municipal area. Gouritsmond is the last coastal town on the eastern side of the municipal area, at the mouth of the Gouritz estuary which is the shared boundary of Hessequa and Mossel Bay municipalities. The total land area of Hessequa is approximately 5 733 square kilometers (Local Government, 2015). In 2011 Hessequa had one of the smaller populations in the Eden District, consisting of 52 642 of the Eden District's 574 265 people (Local Government, 2015).

On order to put the difference with regards to age and gender within the total population into perspective the following information has been obtained from the Hessequa IDP (Hessequa Municipality, 2015). *"The Hessequa triangular-shaped pyramid shows there is a large number of youth between the ages of 0 and 9 among males and females as a result of high birth rates, with more than 8 percent representing the 0 to 4 age group. The top of the pyramid shows the impact of mortality on those 65+ for males and females. A large proportion of youth brings a high youth dependency ratio, showing a need to meet the demands of resources and services such as schools, primary healthcare services and recreational facilities such as sports fields in the Hessequa municipal area".* The pyramid shows that Hessequa has a well-balanced gender ratio with 48% males and 52% females. It is also visible that the age groups 30 to 39 leave the region for better career

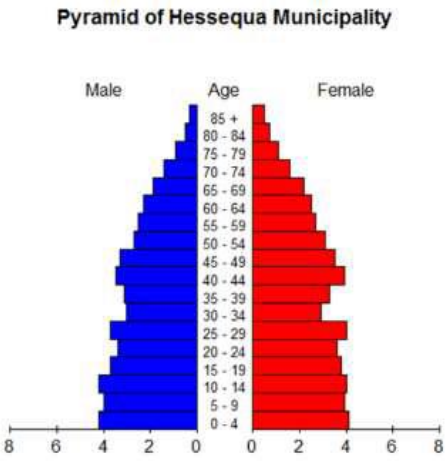


Figure 5.2: Hessequa Population Demography (Hessequa Municipality. 2015:1)

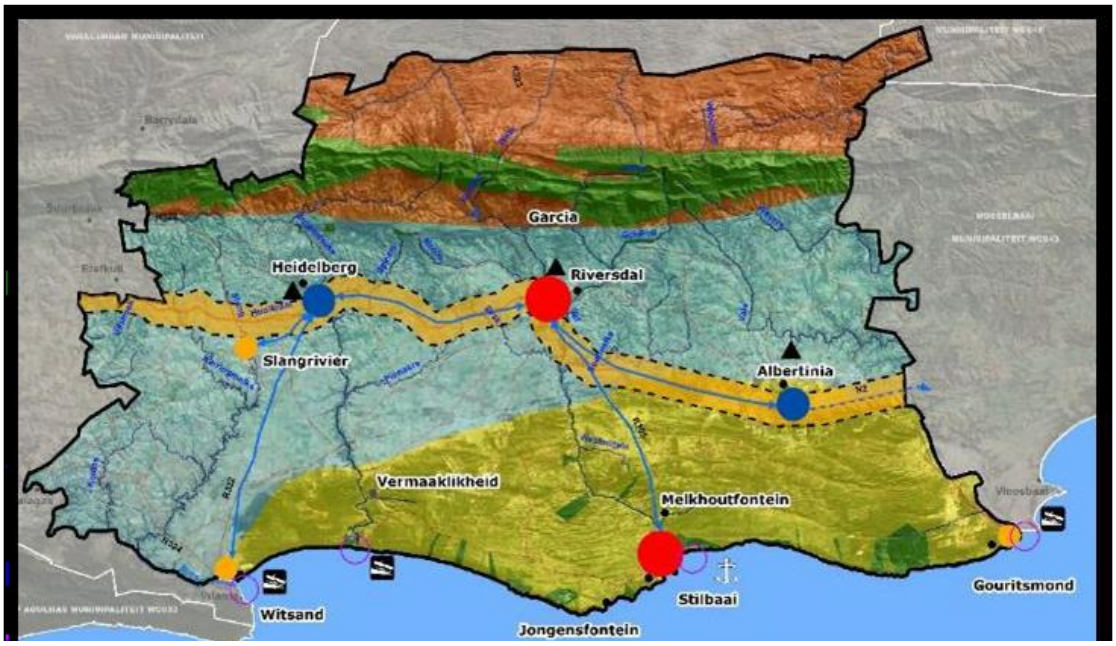


Figure 5.3: Hessequa Municipality (Hessequa Municipality, 2015:15)

prospects and skills growth. It should be noted that 78% of the population stays in urban areas and 22% live on farms. These percentages should give a good indication of where most of the municipality's resources are utilised. The population within the jurisdiction of Hessequa Municipality grew at an annual average rate of 1.8 percent between 2001 and 2011 (Hessequa Municipality, 2015:1).

According to the municipal IDP (Hessequa Municipality, 2015:2), the Hessequa population is growing at a slower rate compared to other local municipalities in the EDM, with only Oudtshoorn and Kannaland having a slower rate than Hessequa. Bitou Municipality is the fastest growing municipality with a percentage growth of 5.4% followed by George with 3.6%.

In light of this background, the Hessequa Council takes environmental sustainability and management of its natural resources very serious. This ideology is reflected in the vision for the municipality (Hessequa Municipality, 2015: 6) as set out for 2012-2017 and beyond, which is: *"A caring municipality where everyone reaps the fruit of cost-effective and innovative service delivery, stimulated economic growth and sustainable use of natural resources".*

To implement the vision, specific goals are identified by the municipal council which are aligned with the objects as stipulated by the Constitution. The Constitution of South Africa identifies five objects that local municipalities should deliver on to its communities.

In Section 152 of the Constitution of the Republic of South Africa (South Africa, 2008c: 66), these objectives identify principal elements which need to be achieved by local governments. The Hessequa council took these objects very serious and provided the Hessequa region with six (6) key performance areas (KPAs). This in essence refers to the areas of governance that they as Council promise to impact on during their term of office. Every programme and project that emanates from the local municipality will in one way or another contribute to make the aim of these KPAs a reality.

These KPAs (Hessequa Municipality, 2015: 6) are:

- *"Effective communication and participation*
- *Limit the impact of our presence on the natural environment to establish a heritage of preservation*
- *Maintenance and development of all infrastructure and services*
- *Development initiatives to enhance the safety and wellbeing of residents*
- *Stimulate economic growth for the benefit of all communities*

- *To be an accountable local authority with a fit for purpose workforce and transparent financial practices"*

It is clear that the Hessequa council is pro-environment with regard to the sustainability thereof, as is reflected in its objects in terms of the South African Constitution. It should be noted that the aforementioned is only the vision and objectives of the municipality. More important is the implementation thereof and how various statutes mandate local government to enable the execution thereof.

5.3 Local government legislative directives

Although not specifically environmentally orientated there are foremost legislation, with the exception of the Constitution, which gives effect to the operational ambit of local government and with specific reference to Hessequa Municipality, is:

a. The Municipal Finance Management Act, 2003 (Act 56 of 2003) (South Africa, 2003b) which governs municipal finances such as income and expenditure.
b. Local Government: Municipal Systems Act, 2000 (Act 32 of 2000) which defines the legal nature of a municipality. The Act *"... provides the core principles, mechanisms and processes that are necessary to enable municipalities to move progressively toward the social and economic upliftment of local communities and ensure universal access to essential services..."* as well as the provision of these services in a sustainable fashion (South Africa, 2000:2).
c. Local Government: Municipal Structures Act, 1998 (Act 117 of 1998) which dictates the structure of municipalities. It is this Act that aligns the municipal structure with that of other spheres of government, ensuring vertical cooperatives.

It should be noted that the abovementioned legislation forms the backbone of local authorities and on which the current environmental functions of the Hessequa Municipality is based and also that there are several more sector-specific laws and regulations impacting local government, targeting specific functions of the organisation. There are also certain grey areas in national legislation which are not specifically covered. An example is the management of 'spaces' within a municipal context, referring to beaches, local amenities and public open spaces. Statutes do however make provision for the development of by-laws according to which municipalities can address these grey areas.

A national act which specifically addresses environmental management and which has a major 'impact' on local government, is the National Environmental Management Act, 1998 (Act 106 of 1998) (NEMA), which is also the main statute of this chapter. The 'impact' results from provisions in the said Act that impose obligations on local authorities. Examples of these responsibilities are:

a. Environmental management principles – these principles can be found in Chapter 1 of NEMA (South Africa, 1998b: 10) and apply to the activities of organs of state that may have a significant impact on the environment. With regard to local authorities, the Act imposes an obligation that these principles must be reflected in municipal IDPs.

   In summation of these 'principles' (South Africa, 1998b: 10) the following:

   1. People and their needs should be at the core of the environmental management ideology.
   2. Development should be economically, socially and environmentally sustainable.
   3. Equal access to environmental resources, benefits as well as services in order to sustain basic human needs.
   4. Public participation should be included in environmental decision-making processes.
   5. Environmental education should be rolled out to communities.
   6. Employees have the right to refuse work that will be detrimental to their health or to the environment.
   7. Access should be granted to information pertaining to the environment; and decisions regarding the environment should be taken in a transparent and open manner.
   8. Recognition of the role of the youth and women in environmental management.
   9. Those responsible for environmental destruction such as pollution should bear the responsibility to compensate for the rehabilitation thereof,
   10. The state is the custodian of the environment to the benefit of all citizens.
   11. When inadequate information exists about the impact of decisions and actions on the environment, a risk averse and cautious approach should be taken.

b. The Act also makes provision for the designation of local government officials as environmental management inspectors (EMIs) by the relevant provincial MEC in order to ensure compliance and enforcement of environmental statutes in their areas of jurisdiction. These officials can be designated on the recommendation of the Municipal Manager as to

which statutes they will be able to enforce pertaining to the investigation and inspection of environmental non-compliance to the MEC.

c. Section 46 of NEMA (South Africa, 1998b: 60 - 61) speaks to the development and implementation of environmental management by-laws for municipalities. The member of the executive committee (MEC or Minister) are designated to develop model by-laws with regard to the environment for adoption by local authorities. These by-laws will be orientated towards environmental management and be associated with aspects such as auditing, monitoring, compliance and reporting.

d. The control of emergency incidents is another mandate provided for in Section 30 of NEMA pertaining to B-municipalities. This section specifically tasks local authorities with the management and reporting of emergency incidents in their area of jurisdiction as they are most often the first respondents to these types of incidents. This part of the Act makes provision for municipalities to remedy the situation and, where necessary, rehabilitate the natural environment and recover the expenditure from the responsible entity.

In addition to these mandates, there is secondary legislation that flows from NEMA which deals with specific elements of the environment and consequently tasks local authorities with mandates targeting specific areas under the environmental management banner.

The legislation and examples of some of the implications on municipalities as to their statutory responsibilities are as follows:

Table 5.1: Legislative environmental mandates for municipalities (Author, 2015)

1. *National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003) (NEM:PA)*	○ Municipalities should develop associated by-laws. ○ Municipal proclaimed protected areas will be regulated by provincial legislation. ○ The Minister or MEC is mandated to declare municipal nature reserves. ○ Declared municipal nature reserves should have an associated protected area advisory committee.
2. *National Environmental Management: Biodiversity Act, 2004*	○ Municipalities should develop associated by-laws. ○ IDPs of local authorities should be aligned to any bio-regional plan (e.g. fine-scale biodiversity plans) and to the National Biodiversity Framework.

(Act 10 of 2004) (NEM:BA)	○ Local authorities must include invasive species control, monitoring and eradication plans in their respective IDPs.
3. *National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEM:AQA)*	• Municipalities should develop associated by-laws. • Local authorities are bound by the directives of the National Air Quality Management Framework. • Each local authority must assign an air quality management officer. • Each local authority must develop an Air Quality Management Plan (AQMP) which should be reflected in their IDP.
4. *National Environmental Management: Integrated Coastal Management Amendment Act, 2014 (Act 36 of 2014) (ICMA)*	○ Municipalities should develop associated by-laws that designate formal strips of land as coastal access land. ○ A coastal set-back line needs to be established and delineated on a map for incorporation into the municipal zoning scheme. ○ May establish a coastal committee and should be a member of the municipal coastal committee (MCC) managed by the relevant district municipality. ○ Local authorities must develop a coastal management programme which may be incorporated into their IDP and Spatial Development Framework (SDF).
5. *National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM:WA)*	• Local authorities must deliver waste management services. • Municipalities must designate a waste management officer. • They must develop an Integrated Waste Management Plan (IWMP), which needs to be submitted to the MEC for approval and incorporated into the municipal IDP.

In this regard, a checklist of the above conditions is proposed, against which Hessequa Municipality's compliance is to be measured.

Table 5.2: Hessequa Municipality's environmental compliance (Author, 2015).

Table 5.2: Hessequa Municipality's environmental compliance				
	Legislation	**Conditions**	**Comply**	**Hessequa Municipality - Status**
1.	Principles proposed by NEMA	○ Various environmental management principles as portrayed in Chapter 1 of NEMA (South Africa, 1998b).	+	Reflected in municipal IDP.
2.	EMIs	○ Designation of local government officials as EMIs.	–	Only one municipal official has undergone EMI training, but has not been designated.[1]
3.	Environmental management by-laws in terms of Section 46 of NEMA	○ Development and implementation of environmental management by-laws for municipalities.	–	No environmental management model by-laws have been received from the office of the MEC.
4.	Control of emergency incidents in terms of Section 30 of NEMA	○ Control and reporting of emergency incidents within the municipal area.	+	Council resolved in August 2015 that this condition must be reflected in the municipal Disaster Management Plan (DMP). This task must be completed by middle October 2015 in order to give effect to the legislation.
5.	National Environmental Management: Protected Areas Act,	○ Develop by-laws.	–	No specific by-laws have been developed, although municipal protected areas are partly covered under the Public Amenities By-law.

[1] Assistant environmental officer

	2003 (Act 57 of 2003)	○ Proclaimed protected areas regulated by provincial legislation.	+	Done, municipal nature reserves are also in the process of being registered under the provincial stewardship programme.[2]
		○ Declare municipal nature reserves.	+	All municipal nature reserves have been declared. Full list which can found in Addendum 2.[3]
		○ Protected area advisory committee.	+	Protected Area Advisory Committee has been established.
6.	National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)	○ Municipalities should develop associated by-laws.	–	No biodiversity by-law has been developed.
		○ Alignment of bio-regional plan and National Biodiversity Framework with municipal IDP.	+	Alignment has taken place, proof of which can be found in Addendum 3 of this thesis, which is the Hessequa Biodiversity Fine-Scale Plan.[4]
		○ Invasive species control, monitoring and eradication plans incorporated into IDP.	+	A 'Control of Invasive Plant Species on Municipal Land'[5] action plan has been developed and incorporated into the IDP.
7.	National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)	○ Develop by-laws.	+	Air quality management by-laws have been developed.
		○ Adhere to directives of National Air Quality Management Framework.	+	Hessequa Municipality has a service level agreement (SLA) with Eden District Municipality (EDM) for partial delivery of air

[2] Addendum 1: Stewardship Contract
[3] Addendum 2: List of proclaimed municipal nature reserves
[4] Addendum 3: Hessequa Biodiversity Fine-Scale Plan
[5] Control of Invasive Plant Species (document available on the municipal website)

				quality services in the Hessequa region.
		○ Assign air quality management officer.	+	An air quality management officer has been assigned.[6]
		○ Develop an Air Quality Management Plan (AQMP) which is reflected in IDP.	+	A Hessequa ir Quality Management Plan was developed in 2013.[7]
8.	National Environmental Management: Integrated Coastal Management Amendment Act, 2014 (Act 36 of 2014)	○ Municipalities should develop associated by-laws.	–	No by-laws have been developed; scheduled for the 2016/17 municipal financial year.
		○ Establishment of a coastal set-back line which is delineated on a map and incorporated into the municipal zoning scheme.	–	No coastal set-back line has been established, this will be done by the Department of Environmental Affairs and Development Planning (DEA&DP). This action is scheduled for the 2015/16 provincial financial year and implementation thereof will be for the Eden district starting at the Breede Estuary which forms the western boundary of the Hessequa Municipality.
		○ May establish a coastal committee and a member of the MCC.	+	Hessequa Municipality is a member of the Eden MCC.
		○ Develop coastal management programme for	–	Hessequa Municipality contributed financially and intellectually to the development of the Eden Coastal Management

[6] Air Quality Management Officer: Head – Environmental Services
[7] Available on the Hessequa municipal website.

		incorporation into the IDP and SDF.		Programme[8], but still has to complete a programme which is specific to the Hessequa area.
9.	National Environmental Management: Waste Act, 2008 (Act 59 of 2008)	○ Local authorities must deliver waste management services.	+	Services are rendered.
		○ Designation of a waste management officer.	+	Waste management officer has been designated[9].
		○ Development of an IWMP, which is submitted to the MEC for approval and incorporated into the municipal IDP.	+	IWMP was developed, approved in 2014 and reflected in the most recent version of the IDP.

It should be taken into account that from the list of mandated functions above, only waste management is a funded mandate, meaning that the municipality is not generating any income from the other functions. In Hessequa Municipality, waste management is also the only function referred to in the list above that does not rest with the Environmental Services Section that gives effect to NEMA in all other cases. This serves as an indicator that environmental management at Hessequa Municipality is seen as an essential function, albeit an unfunded mandate. With a diminishing budget for delivering essential services, the municipality in most cases cuts costs around those mandates that are not funded, resulting in a negative effect on those departments and sections tasked with delivering these types of services. To the credit of Hessequa Municipality is that it achieved overall second place in the 2014 Greenest Municipal Awards. This is a competition hosted by the Provincial Department of Environmental Affairs and Development Planning (DEA&DP) and elements evaluated include air quality, waste management, coastal management, climate change, water management and leadership (Western Cape Government, 2014b).

[8] Eden District Coastal Management Programme available on the EDM website.
[9] Manager: Technical Services

5.4 Current environmental concerns in Hessequa Municipality

Although Hessequa Municipality is currently delivering essential services as well as most of the services required in terms of environmental legislation, the organisation is still hampered and restricted in its performance in some areas of operation. This is partly due to a shortage of resources and capacity in key positions and partly due to a lack of core policies and tools to facilitate decision-making. The main concerns are:

5.4.1 Although complying with all directives provided under NEM:WA (South Africa, 2008a: 26), such as the development of an IWMP and designating a waste management officer, the municipality is still in the process of implementing the said plan. In this regard the municipality is only now in the process of appointing a dedicated waste manager. This function will now fall under the previous Head: Parks and Resorts who will in future be titled Head: Parks and Cleansing. In the past, this function fell under the umbrella of the technical department, with no dedicated management structure in place and only the essentials of waste management was performed in order to comply with the relevant legislation. There was no forward planning on how the impact on the natural environment will be managed. However, the municipality did show its dedication to improving its environmental management function by developing its IWMP and by assigning a dedicated waste manager. As the implementation of these two management actions has not yet taken place, integrated waste management is still viewed as an environmental issue at the Hessequa Municipality.

5.4.2 Compliance remains an issue at the Hessequa Municipality, with specific reference to the designation of EMIs, the drafting and adoption of various by-laws pertaining to the environment and the capacity to implement these statutes. Capacity refers to dedicated law enforcement personnel who are knowledgeable in environmental matters and by-laws and who underwent the appropriate municipal law enforcement and EMI training.

5.4.3 Although ICMA came into effect in 2008, Hessequa Municipality (as with most coastal B-municipalities) only started implementing its conditions towards the end of 2012 as a four-year period is allowed for the implementation of the Act (South Africa, 2014:36). It should be noted that the act decrees that the district municipality is responsible for the development of a coastal management program, but when a district does not have the capacity, they can designate the function to a local authority by means of an agreement between the two entities. No coastal management program has been done for the Hessequa Municipality by the relevant district authority and no written agreement has

been signed. This constitutes a problem as coastal management is performed in an ununiformed manner and the lack of designation from district is at the expense of the local coastline and communities.

5.4.4 One of the main problems faced by Hessequa Municipality with regard to the environment, is the lack of an amalgamated approach to environmental management. In most cases this can be achieved by the development and implementation of an Environmental Management Framework (EMF) that adheres to a set of standards provided through an Environmental Management System (EMS). These two tools will form the backbone of environmental management and can be utilised by most of the departments in the organisation's structure.

5.5 Summary

The Hessequa Municipality, compared to other B-municipalities in the Western Cape and more particularly the Eden area, is relatively small in respect of its population and economy and therefore its potential ratepayers. On the other hand, the area it serves (5 733 km²) is bigger than the largest municipality (with regard to population and economy) in the Eden area, which is George Municipality that covers an area of 5 191 km² (Local Government, 2015). It can therefore be concluded against the background provided in this chapter, which includes an outline of legislative mandates provided for by statutes that Hessequa Municipality is well on its way to improve its environmental management function; provided that it incorporates effective tools and overarching mechanisms to facilitate decision-making in their current work methods and stratagems.

The next chapter will deal with the study findings, specifically how an EMS and EMF can be customized for the explicit implementation in Hessequa Municipality.

Chapter 6: Analysis and study findings

6.1 Introduction

In this chapter a short introduction to the limitations of environmental governance as well as good environmental governance will be provided, in order to put environmental management and tools generated from this ideology into perspective. The tools that will be identified entail an EMS and EMF which will be applicable to Hessequa Municipality. The objective is to provide the municipality with guidelines on how these tools should be developed, which should ultimately result in the establishment of procedures that limit or minimise the impact on the environment in the delivery of municipal services. This philosophy is depicted in Figure 6.1 below.

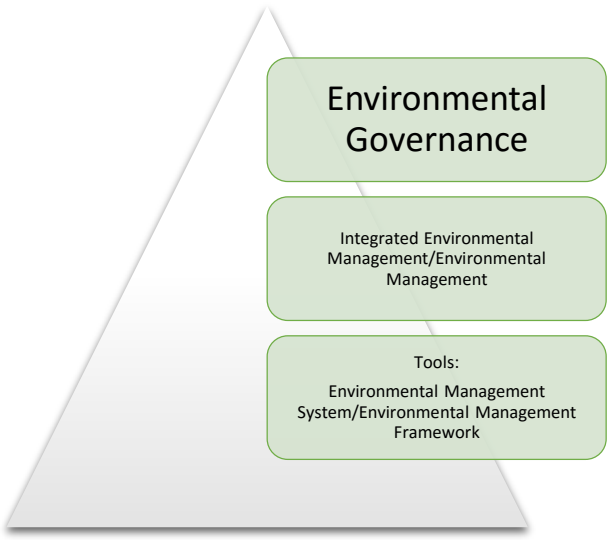


Figure 6.1: Environmental management hierarchy (Author, 2015)

6.2 Limitations to environmental governance versus good environmental governance

Discussions in this thesis revolved around IEM, the various legislation that underpins environmental management and the tools which make effective environmental management possible. Below, an overview of the limitations of environmental governance as well as of good environmental governance is provided, in order to put the scope in which IEM and its associated tools operates into perspective. Müller (2004:1) points to what he calls the 'limits to governance', which in essence is a description of the complexities and constraints within the three spheres of government and the traditional manner in which governance is enforced. He

also states (Müller, 2004) that problems always occur at the seams of government structures, in areas where said structures need to integrate on various levels. This could be between state departments, at levels of government, between the components of departments and the integration between state and external factors such as the public or non-governmental organisations (NGOs). Other limits to governance, as we know it, pertaining to the environment, are provided by Carley and Christie (2000:178):

1. Environmental problems in most cases are complex, which prevent direct and straightforward solutions. This complexity prohibits single government entities from solving problems as it in most cases requires multi-governmental solutions.
2. Limitations of traditional bureaucracies which are orientated around command and control. These types of structures are extremely rigid and unable to adapt to rapid and unexpected change.
3. The complexity of environmental problems in most cases requires a solution formulated by multidisciplinary inputs. In this instance the problems are usually defined by officials limited by a single-discipline view.
4. The 'administrative trap' that Müller (2004:3 - 4) ascribes to *"... the failure of horizontal integration",* which is where the symptom is treated as the problem.
5. Poor vertical integration between policy levels of government and the user who utilises the resource.
6. The over-reliance on institutional reform, which creates the perception that the implementation of the best institutional arrangement will result in acceptable environmental management.
7. The inability of traditional governance systems to absorb, admit, analyse and ultimately learn from past mistakes.
8. The failure to improve management processes by those in a position to do so.

In seeking solutions to the problem of 'limitations of environmental governance', the DEA (Department of Environmental Affairs, 2008) states that *"weak governance very often causes environmental degradation, as do conditions in which people have no means to secure their natural, financial and personal resources, which can lead to scarcity"*. They also state that the only way to establish good environmental governance is by the fair and sustainable management of ecosystems.

SALGA (South African Local Government Association) (2014:55) states that good governance, in essence, orientates around achieving the desired goals in the correct fashion and that good environmental governance facilitates effective management and the stewardship of public resources. To reach this goal, organisational performance and mechanisms such as quality control, leadership, transparency, efficiency, responsiveness as well as accountability need to improve.

They (SALGA, 2014: 4) further state that good governance entails:

1. Making the correct decisions in order to protect the environment and delivering services in a sustainable fashion.
2. Understanding directives provided by legislation and policies, along with complying therewith.
3. Good management practices by being accountable, providing strategic leadership, being transparent; responsive; efficient and delivering quality services.

The key principles of good environmental governance therefore are:

Figure 6.2: Principles of good environmental governance (SALGA, 2014:4)

The NFSD (South Africa, 2008b) defines environmental governance as the means by which society determines and acts on goals and priorities relating to the management of natural resources. This includes rules, both formal and informal, that govern human behaviour in decision-making processes as well as the decisions themselves.

It provides a set of guiding principles which are:

a. The development of an appropriate legal framework.
b. Sustainable development is the core of environmental governance, which should attempt to balance all human activities with regard to the political, social, economic and environment.
c. Inclusivity of multiple actors is key to good environmental governance.

This approach can be implemented at local level by applying the ‘environmental governance’ philosophy into effective environmental management approaches or tools, which can ultimately result in guidelines and actions, such as an EMS and EMF for Hessequa Municipality. Against

this background, the following 'good environmental governance model' is proposed for Hessequa Municipality, which orientates around 'knowledge' and 'actions'.

Good corporate or organisational governance is the epicentre of good environmental governance. This being said, there is a difference in that environmental governance requires policy-makers, decision-makers and practitioners such as municipal officials to have a full knowledge of the environmental factors within and around Hessequa Municipality. In the model for environmental management and governance proposed for the municipality (Figure 6.3), knowledge of environmental priorities at international, national and local level is essential. This knowledge should be combined with a thorough understanding of the legislative requirements as prescribed by the various applicable statutes such as the Constitution, NEMA, Local Government: Municipal Systems Act and Spatial Planning and Land Use Management Act (SPLUMA). Hessequa Municipality should in this instance be able to adopt corporate and national policy tools at a local level. This can be achieved by designing environmental sector plans and developing by-laws and management systems which can ultimately be implemented and used for compliance monitoring and enforcement. These tools should be implemented by means of a best-practice adaptive environmental management strategy, which in this case shall conform to ISO 14001.

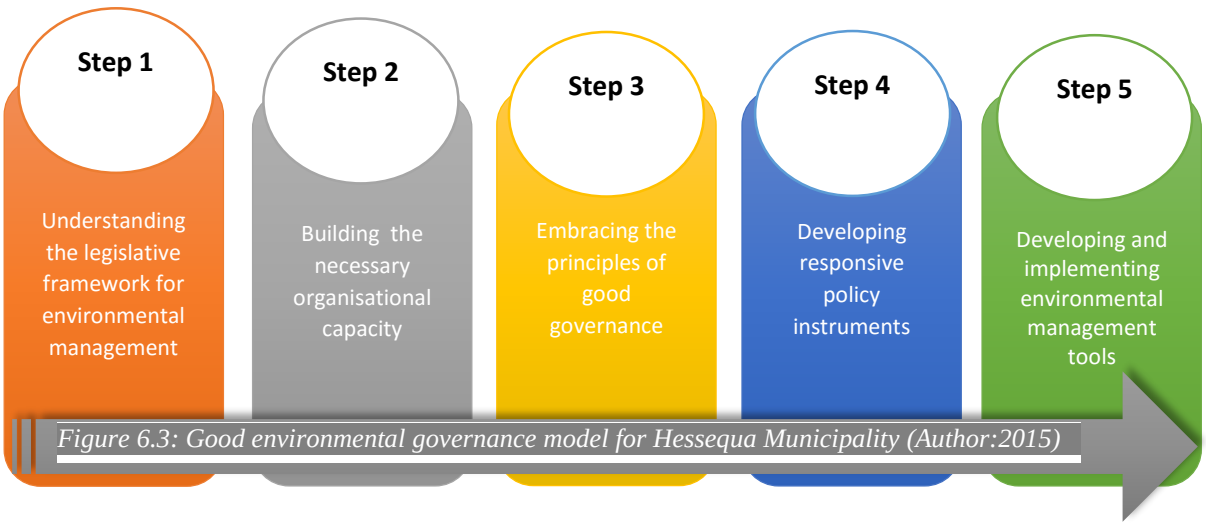


Figure 6.3: Good environmental governance model for Hessequa Municipality (Author:2015)

6.3 EMS as a tool for Hessequa Municipality

Conforming to ISO 14001[10] means that the notion of continuous improvement is deeply imbedded in the organisation, which in this case is the municipality, and it should be advocated

[10] ISO 9000: ISO 14001 standards share common management system principles with the ISO 9000 series of quality system standards. (Global Environmental Management Initiative, 1998)

in its good environmental governance ideology. Continual improvement is realised by repetitive evaluation of the relevance and performance of the municipal sector plans and associated management plans against the municipal vision, goals and objectives with regard to sustainability. This will assist in the identification of areas where improvement can be brought about. It also refers to continually assessing and enhancing the efficiency, effectiveness and accountability of institutions and social partners to deliver against desired outcomes and mandates granted.

Those monitoring and evaluating systems already in place in the municipality need to be consolidated and fine-tuned so that they can better measure progress towards sustainability and associated objectives (South Africa, 2008b). The consolidator which is proposed for the municipality is an EMS based on the ISO 14001 International Standard as explained in Chapter 4. The EMS is defined by Rendell and McGinty (2004:5) as a systematic approach for integrating environmental priorities and goals with the daily operations of an organisation. They also state that the EMS is a process of formulising the various processes surrounding environmental requirements by capturing it in the form of textual data or documentation (Global Environmental Management Initiative, 1998:23). These processes are usually deemed as inherent to an organisation's daily operations. The benefit is that it ensures consistency over time which is transferred to employees and ensures environmental benefits in the long term. Barbu et al. (2012:59) state that an EMS *"... refers to the management of an organisation's environmental programmes in a comprehensive, systematic, planned and documented manner. It includes the organisational structure, planning and resources for developing, implementing and maintaining policy for environmental protection"*.

6.4 Additional benefits for Hessequa Municipality

The following are additional benefits for the municipality, if they do decide to embrace an EMS (International Organisation for Standardisation, 2015):

a. Improved environmental performance and compliance in the exercise of their statutory functions.

b. Improvement in the control of emergency incidents in accordance with Section 30 of NEMA.

c. Progression towards better environmental awareness, training and stakeholder involvement.

d. Increased efficacy in the overall management and operational management of the organisation.

e. Improved relationship with the regulating bodies such as DEA&DP and DEA.

f. Better relationship with the general community.

g. Reduction in waste output and energy consumption.

h. The EMS process provides for the requirements of multiple stakeholders,

i. The process also makes provision for the municipality to improve its response to the public if and when information is requested, which also adds to the overall transparency of the organisation.

j. An EMS also demonstrates to the public that those tasked with management of the organisation have control over its structures and operations.

6.5 Key attributes to the successful implementation of an EMS in Hessequa Municipality.

Rendell and McGinty (2004:17 - 18) provides a list of elements that is essential for the success of an EMS, with specific reference to a municipal setup.

6.5.1 Full commitment to the project

The success of an EMS can be largely contributed to commitment by the senior management component of the organisation. In this instance it is the top structure of the municipality as depicted in Figure 6.5 below:

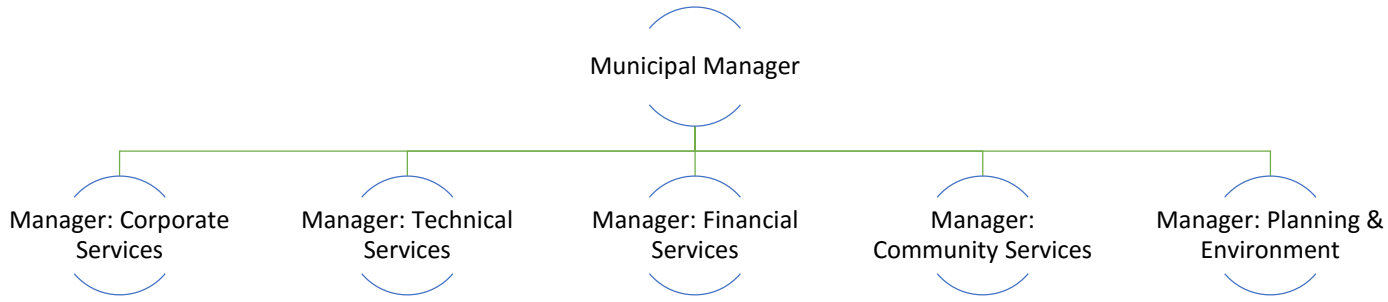


Figure 6.4: Hierarchy of management structure in Hessequa Municipality (Author:2015)

It is imperative to ensure the buy-in of these senior managers and that they fully comprehend the value of an EMS in order to incorporate the system into the day-to-day operations of the organisation (International Organisation for Standardisation, 2015). This commitment should be documented and communicated to all those involved in the implementation of the system as to ensure compliance with the directives provided by the EMS. The senior management structure should also actively participate in the management of the system to set an example for those they lead and to serve as a motivation for the staff. This can be done by means of regular requests for reports and updates which should be tabled at senior management meetings.

6.5.2 Assign a project team or committee with a dedicated project manager

Due to Hessequa Municipality being small with regard to its staff component in comparison with other local municipalities such as Mossel Bay and George, a project team should be assigned for the development and implementation of an EMS. The committee should consist of at least five people. A project manager or EMS manager should be appointed to provide guidance and hold the team accountable for reaching its objectives. The project manager should also ensure that the workload is evenly distributed to enable team members to pay sufficient attention to their other duties.

6.5.3 Routine meetings

To ensure that the achievement of deliverables are realistic and on schedule, routine meetings should be held to safeguard the team from being overwhelmed by the implementation process. In this instance weekly or bi-weekly meetings are recommended.

6.5.4 Broadcasting of the EMS

Raising awareness of the EMS amongst the rest of the municipal staff component might cause some excitement with employees, other than those party to the project, especially when they realise the benefits it holds for their respective areas of operation. In this regard it could also give managers the additional motivation to make a success of the EMS.

6.5.5 Integration of the EMS with the existing Hessequa municipal system

Most of the elements needed to conform to the requirements of an EMS are already in place in the structure and municipal system. In most cases these elements only need to be formalised, for example the adherence to environmental legislation and the formal documentation thereof, including checklists (Global Environmental Management Initiative, 1998:9). It is therefore important to do a proper assessment and identify the existing systems and operational practices with which the EMS elements should integrate. In this instance the focus should be on

enhancing existing systems and practices rather than creating new ones. One of the main aspects which should be enforced in these kind of practices and operating systems, is the environmental concerns that should be built into the daily activities of all staff members concerned. Of further importance regarding the environmental structure is the review and evaluation of set targets, the implementation of programmes for improving performance and the integration of goals with the municipal budget and existing planning cycle as required in the IDP. Training requirements should also be catered for and in this respect the existing human resource (HR) structure can be utilised.

6.5.6 Recognition that the EMS process is on-going

The Hessequa Municipality should recognise that although it is important to finalise the implementation of the EMS process, it is only one of the phases of a continuous cycle. The core of the EMS process is continuous improvement of all the components of environmental management within the municipal structure. The result of developing an EMS for Hessequa should be a system where continuous improvement is inherent to the process.

6.5.7 Good understanding of the resources that will be required

It is important that, before committing to the adoption of an EMS, the municipality realises that the process will have medium- to long-term benefits. The initial development and implementation costs of the EMS will be high; the system will require the dedication of a number of officials throughout the organisation. The municipality should also take cognisance that, if implemented in a proper fashion, the system will save the organisation money, reduce resource usage, minimise risk associated with the environment and, as important, result in a significant improvement in environmental performance. Thus, a realistic cost, resource and time analysis should be done prior to the development of the EMS.

6.6 Assessment, EMS cycle and model prescribed for the municipality

	Table 6.1: EMS implementation questionnaire	
1.	Has the development of an EMS been requested by any of the municipal stakeholders?	Yes/No/ Don't know
2.	Would it be beneficial for Hessequa Municipality to announce that they have an EMS?	Yes/No/

		Don't know
3.	Could Hessequa Municipality benefit from establishing a process to prioritise and incorporate stakeholder (i.e. local community, business sector, etc.) requirements into municipal operations?	Yes/No/ Don't know
4.	Do you see value in developing a system and procedures for the municipality that identifies and addresses environmental risks, liabilities and potential impacts?	Yes/No/ Don't know
5.	Do you see value in the development of a system and associated procedures that will ensure regulatory compliance?	Yes/No/ Don't know
6.	Could Hessequa Municipality benefit from establishing a procedure that will monitor the operations, objectives and targets of the organisation and track its performance and evaluate compliance with environmental statutes?	Yes/No/ Don't know
7.	Are you aware of any other local municipalities within the Eden municipal district that are pursuing an EMS?	Yes/No/ Don't know
8.	According to your knowledge, does Hessequa Municipality have sufficient human and financial resources available to successfully develop, implement and operate an EMS?	Yes/No/ Don't know

Table 6.1: EMS implementation questionnaire (Rendell & McGinty, 2004:25)

6.6.1 Assessment as a first step to determine whether an EMS is appropriate for the municipality

In order to ensure that resources are not unnecessarily wasted on a process that does not conform to the ideals or structure of the organisation, an assessment should be undertaken to establish the applicability of the system to Hessequa Municipality. Rendell and McGinty (2004:25) propose the steps as set out below Table 6.1 to assess whether a municipality is ready to implement this type of system.

a. **Gathering of information:** The process of amassing information to make an informed decision can also have the benefit of collecting additional data regarding the benefits, challenges, success factors and drivers pertaining to an EMS. Following this process as a first step also means that those who the data is gathered from, including senior management, could provide an important insight into the potential challenges and opportunities of implementing an EMS. The goal of this exercise will be to align the assembled information with the decision-makers in the organisation, who will have to decide whether an EMS is applicable to Hessequa Municipality.

For this exercise the questionnaire in Table 6.1 above is proposed (Rendell & McGinty, 2004:25).

b. **Assessment of drivers:** Drivers refer to those elements that drive and/or impact the EMS. These drivers can either be internal (e.g. funding) or external (e.g. community). The gathering of information, as discussed above, will assist in determining drivers. It will be beneficial to Hessequa Municipality to assign a degree of importance to all drivers, as this will assist in determining the extent to which an EMS should be implemented and whether it should be implemented at all. The ideal will be to find a balance between the external and internal drivers as this will simplify moving forward with the system.

c. **Appraisal of the potential costs as well as the benefits of implementing an EMS for Hessequa Municipality**: By calculating the direct costs of developing, implementing and operating an EMS over the long term and measuring it against the current cost of existing management practices will give a good estimate of the cost savings associated with the system. Another important factor to consider is that the EMS runs on the assumption that it is a system of continuous improvement, meaning that the expenditure associated with the system will show a significant reduction in the long run. Indirect benefits of the system (e.g. the associated change of culture within the municipality) that cannot be quantified by means of numerical costs should also be considered.

d. **Setting of goals:** This is the final phase of the self-assessment process after all the information has been compiled, drivers have been identified as well as prioritised and the costs and benefits of implementing the system have been established (Global Environmental Management Initiative, 1998:22). The process now commences with the municipality taking a decision as to the extent of implementation of the EMS. There are three options (Rendell & McGinty, 2004:47) namely:

    - By means of third-party certification to ISO 14001[11] (Global Environmental Management Initiative, 1998:55).
    - Taking the route of implementing a complete EMS without certifying it with ISO 14001.

[11] Third-party certification – where an independent certification body audits your practices against the requirements of the standard which is a way of signalling to your buyers, customers, suppliers and other stakeholders that you have implemented the standard properly. What's more, for some organisations, it helps to show how they meet regulatory or contractual requirements.
(International Organisation for Standardisation, 2015)

- The partial implementation of the EMS.

Due to the associated costs that Hessequa Municipality will incur by obtaining third-party certification of the EMS, the most probable option will be to implement a full system or part thereof without official ISO 14001 certification. This means that a system that conforms with ISO 14001 standards will be implemented, but the municipality will not register the EMS with ISO). This process will entail making a decision of how the non-certified EMS will be publicised. The most common (Rendell & McGinty, 2004: 14) method is self-declaration, where Hessequa Municipality announces by means of its general communication channels that they have an EMS in place that conforms to ISO 14001. The rationale behind publicising the EMS is that the municipality clearly demonstrates and communicates its commitment to environmental management and its fervour to improve its environmental performance.

6.6.2 EMS cycle and model (refer to Figure 4.2)

The EMS cycle as prescribed by ISO comprises of five sections, almost similar to the EMS model provided by Barbu et al. (2012:5):

Figure 6.5: ISO 14001 EMS Model (Identical to figure 4.2) (Barbu et al., 2012:5)

Table 6.2 below depicts an EMS model for Hessequa Municipality in relation with ISO 14001 EMS (Rendell & McGinty, 2004:189)

	Steps	Description	Hessequa action
1.	Environmental Policy	Establishes the position of the organisation and communicates its commitment to the environment to the community.	*This has been done.*
2.	Planning	Identification of environmental requirements and issues; within and surrounding the organisation as well as	*This can be done via an SOER.*

		defining the actions and resources needed to attain its economic goals and actively sustain its environmental policy.	
3.	Implementation and operations	A description of the programmes, procedures and responsibilities that are required to implement key actions needed to attain goals.	*Development of a set of toolkits, a checklist and strategic operating procedures (SOPs) and the adoption thereof.*
4.	Checking and corrective action	Points to the continuous monitoring and evaluation of the effectiveness of the environmental management actions referred to above.	*Implementation of a checklist against which auditing can take place.*
5.	Management review	Refers to the evaluation of the system as a whole by top-level management in order to establish the overall effectiveness thereof and to sustain continual improvement of the said system in order to achieve the goals of the organisation.	*Evaluation of the outcomes obtained from the audit. This should be done according to SOPs (which should indicate frequency of audits).*

Table 6.2: EMS model for Hessequa Municipality in relation with ISO 14001 EMS (Rendell & McGinty, 2004:189)

6.6.3 Environmental policy[12]

One of the main components of an EMS is an environmental policy, which complements the existing Hessequa municipal IDP and addresses local environmental requirements. An environmental policy of this nature should be consistent with the following principles:

a. It should be relevant and applicable with regard to the nature, environmental impact and scale of the various activities associated with development and municipal services. The

[12] Environmental policy
"The environmental policy is the driver for implementing and improving the organization's environmental management system." (Global Environmental Management Initiative, 1996)
"Statement by the organization of its intentions and principles in relation to its overall energy and environmental performance, which provides a framework for action and for the setting of its energy environmental objectives and targets (modified definition from ISO 14001)" (Rendell & McGinty, 2004).

policy should therefore be applicable from small residential developments to large shopping complexes (sustainable land use and spatial development), from waste management to water management (delivery of basic services).

b. It should ensure that stakeholders stay committed to the prevention of environmental degradation associated with the delivery of services.
c. It should state that the Hessequa Municipality will always comply with environmental legislation and regulations.
d. It should provide a framework according to which environmental legislation and regulations can be determined and reviewed.
e. Finally, it is important that the policy be properly implemented, documented, maintained and conversed by and to all concerned (Global Environmental Management Initiative, 1996:7).

The Hessequa Environmental Policy should consist of the following headings:

a. Policy statement – A declaration by the municipality as to its strategic objective. This objective should be in line with the EMS and talk to the municipality's intention of ensuring a sustainable future through the effective conservation and restoration of natural resources as well as returning to a heritage of preservation.
b. Purpose – It should be an over-riding consideration with regard to municipal strategic goals as far as environmental management issues are concerned.
c. Aims – Consisting of the key principles underpinning the activities of Hessequa Municipality, such as to ensure the sustainability of all development within the municipal area.
d. Scope of the policy – This entails the declaration by Hessequa Municipality that all its actions, departments, stakeholders, suppliers and contractors will conform to the policy.
e. References – Stating the ideology or practice that underpins the policy. This includes the ISO 14001 Environmental Management System and relevant legislation.
f. Environmental policy – A statement by the municipality that it will strive to apply its environmental principles when providing services in the following critical areas:
    - Legal statutes and other requirements prescribed by law;
    - Prevention of pollution and degradation of the environment;
    - Protection, management and conservation of natural resources;
    - Waste management;

- Air quality management;
- Biodiversity management;
- Coastal management;
- Water management;
- Sustainable energy management;
- Impacts of climate change;
- Sustainable land use and spatial development;
- Provision of basic services and infrastructure;
- Local economic development;
- Recreation, culture and social cohesion; and
- Partnership, local community engagements and education

In order for the policy to be implementable, it needs to be signed off by the highest authority possible within the municipal structure. In this instance the preferred persons will be both the municipal manager and the executive mayor as to ensure both administrative and political buy-in.

6.6.4 Planning[13]

This phase refers to the steps that need to be taken to ensure that the environmental policy is translated into a working plan and should incorporate the following (Rendell & McGinty, 2004:8):

a. Aspects regarding the activities, products and services rendered by the Hessequa Municipality that can have an impact on the environment should be identified, and an analysis should be done to establish the significance of such impact. Environmental aspects refer to any part of an activity that might have a detrimental or beneficial effect on the receiving environment. It should be noted that the relationship between the aspect and the impact refers to cause and effect. An example of an aspect in this instance can be the illegal discharge of sewage water into a river or dam and the impact refers to the pollution of that resource.
b. Determining and incorporating any legal and statutory requirements that are applicable to the relevant environment.

[13] Planning - *"An organisation should formulate a plan to fulfil its environmental policy." (Global Environmental Management Initiative, 1996)*
"Identifies environmental issues and requirements, and defines the initiatives and resources needed to achieve the environmental policy and economic goals" (Rendell & McGinty, 2004).

c. Establishing and incorporating any environmental objectives put forward by, amongst others, the relevant IDP and lower sphere planning frameworks.
d. Establishing and implementing an effective Environmental Management Plan.

6.6.5 Implementation and operations[14]

The implementation of an EMS entails the definition of roles, responsibilities and accountabilities. This information needs to be communicated throughout the organisation and proper training needs will have to be identified. Furthermore, all EMS related procedures should be textual in the form of documented management systems, documented control procedures and operational controls. The success of implementing an EMS at local government level also depends on the degree of commitment of all employees of a municipality (Rendell & McGinty, 2004). In this instance the more employees committed to the cause, the better the chances of success. The implication therefore is that total commitment should not only rest with the environmental management section of local authorities, but throughout the organisation. Some of the key aspects, as mentioned above for the implementation of this model, are as follows (Global Environmental Management Initiative, 1996:52):

a. Accountabilities and responsibilities

Commitment to the success of an EMS should start at the top management level of Hessequa Municipality. This will be the municipal manager, who is also the chief accounting officer, and his five senior managers. This group forms the top administrative structure of the municipality and they should be responsible for establishing the municipality's environmental policy and ensure the successful implementation of the EMS. To assist in the successful rollout of the system, senior management should identify and designate specific representatives whose roles pertaining the system are defined and who are bestowed with the authority to implement the system. Once this has been established, those delegated to act on behalf of senior management should clearly define the roles and responsibilities of each official in the municipality that is impacted by the system. These roles and responsibilities should be clearly communicated to all employees to ensure that everyone knows what part they will play throughout the implementation and operation phases.

[14] Implementation & Operations - *"For effective implementation an organization should develop the capabilities and support mechanisms necessary to achieve its environmental policy, objectives and targets." (Global Environmental Management Initiative. 1996)*

b. Training and communication

To ensure that all tasks are performed effectively, all training needs pertaining to the EMS should be identified and addressed. As training needs tend to change or evolve, an on-going training programme should be established which could be done by means of the municipality's existing training policy. Aspects that need to be taken into account are the current levels of experience, education and skills of those employees involved in the EMS.

c. Documentation

It is essential that all documentation related to the EMS, such as the documented process controls or management procedures, be incorporated into the existing document system of the municipality. In this instance it will be the electronic Collaborator system, which will enable the individuals responsible to obtain environmental management plans for specific projects, applications for air quality licences, environmental audits and records, etc.

d. Procedures

All procedures relating to the EMS should be judiciously compiled, specify the officials responsible and provide step-by-step guidelines on how specific tasks should be completed. Allowance should also be made for cases where officials are forced to deviate from the formal processes.

6.6.6 Checking and corrective action[15]

In order for an EMS to be successful, allowances should be made for corrective action which will be the result of procedures that have been put in place to ensure regular monitoring of the operations and activities of the municipality (Rendell & McGinty, 2004:8). This phase of the EMS process entails specific actions that include measuring, monitoring and evaluation to ensure that the municipality performs in accordance with its environmental policy, predetermined objectives and the EMS programme. The following elements are recommended to ensure that proper procedures are in place to facilitate the investigation into issues of non-conformance and the rectification of non-conformance with the aforementioned objectives, policy and programme (Global Environmental Management Initiative, 1996:55):

a. Causes of non-conformance should be identified.

[15] Checking AND Corrective Action - *"An organiSation should measure, monitor and evaluate its environmental performance" (Global Environmental Management Initiative, 1996).*

b. Identifying the corrective actions and the implementation thereof.
c. Development of new or amendment of existing controls to avoid the recurrence of the non-conformance.
d. Documenting the changes that occur due to the implementation of the corrective action.

An example of how corrective actions can be managed is proposed by Rendell and McGinty (2004: 125), i.e. that Hessequa Municipality can implement a corrective and preventive action procedure. The purpose of this tool will be to develop a process which will act as a guiding document in order to identify, capture, analyse and implement actions required to prevent environmental incidents and the associated corrective action. The scope will be preventive and corrective actions needed for possible environmental problems.

The following should act as a guideline when establishing the process (Rendell & McGinty, 2004:125):

a. Corrective actions are a reactive process only utilised after environmental problems have occurred. This type of action may be initiated after an internal audit, complaints, management review or as a result of the monitoring and measuring process.
b. Preventive action in this instance is more of a proactive approach to potential environmental problems. This process identifies negative trends and initiates preventive actions before an environmental problem is created. Processes for identifying negative trends include trend analysis, a monitoring and measuring process, the tracking of objective progress, complaints and responses to environmental incidents.
c. The project manager (EMS manager) or project team (committee) responsible for the EMS should review all issues affecting the system, maintain the system and update the EMS documentation impacted by the corrective or preventative action.
d. The same official or team should ensure that changes are communicated to the rest of the municipality along with the applicable solutions and also track the effectiveness thereof.
e. Those officials who are responsible for the implementation of corrective actions should ensure that these actions are executed correctly.
f. The implementing officials should report completion of the required actions to the official responsible for the EMS and/or project team.

The proposed process of how Hessequa Municipality can roll out the preventive or corrective actions is (Author, 2015):

a. All officials dealing with the EMS should be able to take a corrective or preventative action as long as he or she informs the project manager or team accordingly.
b. The project manager or project team must determine the date on which a particular environmental issue should be resolved.
c. If the official responsible for taking the necessary steps to ensure that the problem is resolved is unable to adhere to the due date, then he or she should determine an alternative due date which is acceptable to the project manager or team.
d. The project manager or team is responsible for communicating any overdue actions to the municipal manager and responsible official on a weekly basis.
e. It is also proposed that digitised records be kept of the corrective and preventive actions on the municipal Collaborator system to ensure that the data will be available in perpetuity.
f. The project manager or team should ensure that they verify the effectiveness of the corrective or preventive action.

6.6.7 Management review[16]

Another procedure that needs to be established is one for reviewing the EMS. The project manager or team should develop a schedule for when the system needs to be reviewed in order to ensure the sustainability and effectiveness thereof. A review should be comprehensive but does not have to be all-inclusive, i.e. different elements of the system can be reviewed over a period of time. Proposed guidelines for the review process include:

a. The review of EMS objectives and targets.
b. Review of the audit findings.
c. Compiling and reviewing concerns raised by the stakeholders.
d. Review the effectiveness and efficiency of the EMS in its entirety.
e. Evaluate the environmental policy to ensure that it makes provision for changed legislation, technological improvements, environmental incidents and changed expectations of the relevant stakeholders.

[16] Management Review - *"An organisation should review and continually improve its environmental management system, with the objective of improving its overall environmental performance." (Global Environmental Management Initiative, 1996)*

A review of the EMS can be accomplished by means of environmental auditing, which is defined as a *"… systematic, documented verification process of objectively obtaining and evaluating audit evidence (verifiable information, records or statements of fact) to determine whether specified environmental activities, events, conditions, management systems, or information about these matters conform with audit criteria (policies, practices, procedures or requirements against which the auditor compares collected audit evidence about the subject matter), and communicating the results…"* (South Africa, 2004a:11). Environmental auditing is an important tool in the governance of Hessequa Municipality, especially as it relates to the management and monitoring of the performance of all spheres of government and its sectoral programmes (i.e. Hessequa Coastal Management Programme, Eden District Coastal Management Programme, Western Cape Coastal Management Programme and National Coastal Management Programme). All information generated from an audit provides important information to many different stakeholders. Creative application of environmental auditing techniques can improve transparency and communication in many areas of the municipality, especially where there is a need for greater understanding of environmental and ecosystem interactions (South Africa, 2004a:12).

Environmental auditing advocated for Hessequa Municipality proposes the following characteristics (South Africa, 2004a:12):

a. Should be systematic: Careful planning, structuring and organising should precede the audit. It should be realised that a once-off audit is part of a long-term process of evaluation and checking. As important is that it needs to be a repeatable process, meaning that it can be easily replicated (if necessary) by different groups within the municipality (also spheres of government) to ensure that the results are comparable and can reflect change in a qualitative and quantifiable manner.
b. Intelligible documentation: The underlying principle of an environmental audit is that the findings will be supported by documents and other confirmable information. The audit should take samples of past municipal actions, procedures, events and activities to verify it against system requirements to ensure that it was performed in the correct manner.
c. Intervallic: One of the important aspects of an environmental audit is that it can be carried out at set intervals and the results can depict improvement or change over a period of time.

d. Objective evaluation: Although auditing is a rigid process, an element of subjectivity in the auditing process should always be maintained. This will allow for flexibility which makes provision for the different personalities, experiences and skills that different auditors bring to the table.
e. Municipal performance: The essence of the audit is to see how well the organisation and its various departments are performing.
f. Facilitating the implementation of municipal practices: Hessequa Municipality's governance practices should not be implemented without considering the impact that it may have on the environment. The important aspect is to ensure that these practices take place in accordance with procedures, guidelines, training and system requirements such as those provided by the EMS. This will ensure continuous good environmental performance by the municipality.
g. Compliance with policies and statutes: It should be emphasised that compliance with all applicable legislation, policies and other directives is one of the fundamental principles of an EMS.

The overarching objective of environmental audits will be to continuously test the adequacy of the existing governance system within the Hessequa Municipality, while some of the other important objectives of auditing will be:

a. To demonstrate the municipality's commitment to ensure continual improvement of its activities and also to ensure the sustainability of its programmes to stakeholders, including the public. It will also strengthen the role it plays within the ambit of the Gouritz Cluster Biosphere Reserve (GCBR).
b. To provide a tool for assessing the efficiency and appropriateness of land-use management and associated tools and to assist in the continual improvement of this municipal function. The mandatory revision of the SDF can be greatly informed by the outcome of environmental audits.
c. To regularly evaluate the ambit of institutional integration with regard to the extent and implications for the municipality. This also entails the ambit of integrated development planning and cooperative governance.
d. As indicated in point (g) above, to verify and ensure compliance with relevant policies, statutes and directives.
e. To protect the environment.
f. To reactively address current problems and proactively plan for future problems.

g. To evaluate training programmes and provide input to improve these programmes.
h. To provide for land users to build on good environmental performance which is informed by positive precedents and the rectification of deficiencies when required.
i. To continuously seek potential cost savings in the services provided by the municipality.

In order for Hessequa Municipality to be completely self-sufficient, or as far as the relevant statutes allow, as well as rendering it cost effective, the EMS should be supported by an additional practical tool which will make environmental management even more effective, namely an EMF.

6.7 EMF as a tool for Hessequa Municipality

It should be noted that an EMF will ideally be in a textual format, supported by a GIS system which depicts all the information captured within the document in a spatial manner. The purpose of supplementing the Hessequa EMS with an EMF is that this tool will function as a support mechanism, especially when reviewing environmental impact assessment (EIA) processes which entail the evaluation and review of applications for new developments. This tool also informs decision-making with regard to land-use planning. Given the fact that an EMF is able to portray a vast amount of information, the possible uses thereof are endless and the tool can be applied throughout the municipality. It is important that a task team and project manager are assigned to manage the development and implementation of the framework and to keep it relevant. In this instance the committee that is established for managing the EMS can also take ownership of the EMF.

6.7.1 Proposed objectives of a Hessequa EMF

a. Make information available to support informed and integrated decision-making, even before development proposals are submitted to the municipality. The developer can by means of pre-engagement with the municipality establish whether the land he proposes to develop is appropriate for the intended purpose.
b. Anticipate the potential impacts of developments.
c. Act as an early warning system with regard to cumulative impacts and threshold of a specific environment.
d. Making it possible to indicate the scope of potential environmental impacts.

e. Identifying areas where certain developments will be tolerated and have limited or no environmental impact.
f. Ultimately, contribute to sustainable development.

6.7.2 Information provided by the EMF

In order to conform to the prescribed format of an EMF as provided by NEMA (Act 107 of 1998) and presented by the Environmental Management Framework Regulations (South Africa, 2010b:6), the following will be captured in the Hessequa EMF:

a. Textual description of the Hessequa area, supported by a range of map layers.
b. These two information formats must provide for the various environmental attributes within the municipal area of operation, which should include the sensitivity, significance and interrelationship of all the various factors and extent of influence of these factors.
c. A clear indication of where these attributes are positioned within the area.
d. The conservation status of the area.
e. A list and description of the environmental priorities within the municipal area.
f. A land use register with a clear indication of the type of developments that would have a significant impact on the environmental attributes.
g. A clear indication of unwanted developments with regard to the area as a whole or specific parts thereof.
h. Give a clear indication as to where information gaps exist.
i. Provide a schedule for when the EMF should be revised.
j. Any directive provided by current statutes.

Additional information which could be incorporated into the Hessequa EMF is its terms of reference, an indication of how information was captured, a description of the Public Participation Process and issues raised. The desired state of the environment, pressures from developments and the associated development trends, management proposals and guidelines are further possible inclusions.

6.7.3 Information sources

It is important to ensure that the data depicted in the Hessequa EMF is reliable, up-to-date and accurate in order to ensure integrity of the framework (South Africa, 2012: 8). Data sets should be established from existing data sources, and examples of where it can be obtained are:

a. Latest data obtained from the municipal Infrastructure Management Query Software (IMQS) – data will include geographical representations relating to municipal water, waste and electricity infrastructure.
b. Existing census data obtained either from the municipal IDP or, if not available, from Statistics South Africa (Stats SA).
c. Spatial data from the Hessequa SDF.
d. Information relating to the status quo of the area can be obtained from the Hessequa State of the Environment Report, although this data will have to be regenerated into spatial data if it is to be used as a point of departure for the framework.
e. Data acquired from the GIS department of Eden District Municipality, and the various provincial and national departments such as DEA&DP, DEA, DAFF and the South African National Biodiversity Institute (SANBI).

6.7.4 Proposed categories and layers

In order to populate the Hessequa EMF with data that is relevant to the municipality, district municipality and possibly the provincial departments, the following categories are proposed (Visser, 2015):

a. Geohydrology, which will be beneficial to both urban, industrial and agricultural water users as it can depict water quality and quantity. This is important to the Hessequa region as all of the coastal towns in the area make use of groundwater for residential consumption.
b. Surface hydrology which will depict drainage systems, flow rates and, as important, the ecological requirements particularly in light of the four major estuaries in the Hessequa municipal jurisdiction.
c. Topography, which is important for town planning activities and can be linked directly to the SDF.
d. Soil, with regard to type and quality. This layer is important for various reasons including mining, agriculture, building environment as well as for the natural environment, particularly erosion control.
e. Biodiversity, where the Hessequa Fine Scale Biodiversity Plan can be incorporated into the framework.
f. Infrastructure and engineering networks by means of data obtained from the municipal IQMS should also be added as a layer and category.

g. Sources of ambient air pollution which can be obtained from the Hessequa Air Quality Management Plan.
h. Sources of noise pollution (no noise management plan has been developed for the municipality).
i. All mining activities, including old mines, those where rehabilitation has taken place, those with mining permits and when these will lapse, the types of mines and also other relevant data relating to these types of activities.
j. Heritage sites such as the Blombos caves and fish traps in Still Bay.
k. Buildings or areas of cultural importance and which have special protection status such as the old 'Tolhuis' in Garcia Pass.
l. Population trends that can be obtained from the municipal IDP relating to spatial distribution, income, gender, growth and age.
m. Economic attributes such as the type and location of the various industries. The number of employment opportunities created and possible growth thereof.
n. Legislative directives, plans and programmes that affect an EMF, e.g. the set of Listing Notices provided by NEMA.
o. The Hessequa CMP, which is in the process of being developed, should also be incorporated as a category as this will depict all coastal infrastructure such as public slipways and jetties.
p. Environmental management plans, maintenance plans and all other projects for which environmental authorisation has been obtained, should be incorporated.
q. Land-use planning such as open spaces.

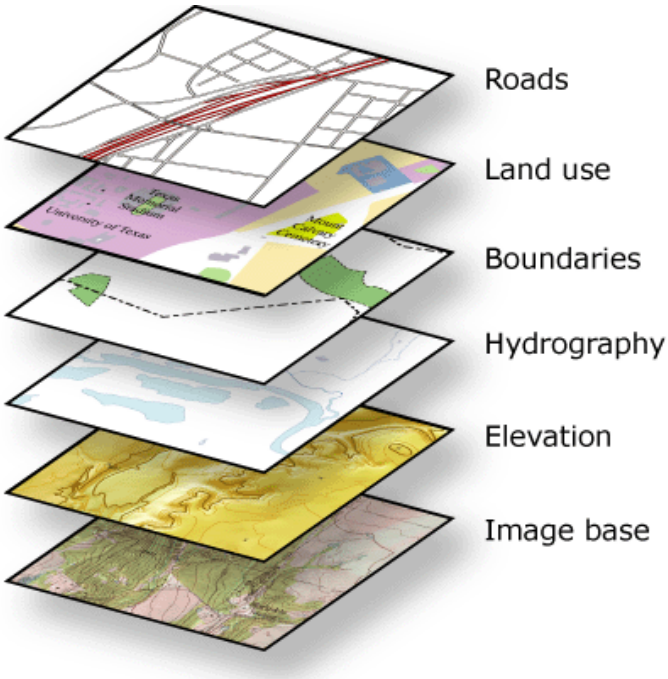


Figure 6.6: Example of GIS layers within an EMF (World Wide Web. 2015)

All of the categories above should be further defined into their respective sections to ensure that it is scientifically correct and relevant. For example, heritage sites should be categorised into world, national or provincial heritage sites and the exact location should be depicted on a map by means of a point, line, buffer or polygon. The EMF document should provide additional data relating to a heritage site, such as date of

declaration, history, whether it is well maintained and whether there is a 'friends of' group or committee that is responsible for managing the site.

6.7.5 Management zones and guidelines

For each of the various layers above, management zones should be established in order to focus the attention of the official utilising the EMF on the critical areas within the specific component, which will ultimately ensure effective decision-making. It is therefore important that the zones within the chosen layers be as relevant as possible with regard to aspects of service delivery (South Africa, 2010b: 16). This can be used to 'red flag' sensitive environmental areas, for example. When a zone has been identified by the EMF as being significantly sensitive to the pressures of development, then such site will require specific management intervention if and when developers show an interest in developing the area. Specific management intervention in this regard refers to management guidelines and parameters which need to be established for all the identified zones. The guidelines and parameters should be clearly described in the EMF document. It should be noted that the management guidelines are developed to link management requirements to the management zones and to indicate the minimum environmental requirements and performance criteria of a specific area against the parameters and the development proposal. The parameters and guidelines can be linked to the requirements set out in the Hessequa EMS.

6.8 Summary

Against the backdrop of good governance, which circumvents the processes of decision-making regarding the control and management of the environment and natural resources, this chapter provides broad guidelines for the development of an EMS and EMF by Hessequa Municipality. The development of an EMF and EMS will allow for the identification of environmental issues and requirements and facilitate the identification of all initiatives and resources needed to achieve its environmental goals. The EMS will provide guidance in terms of procedures to be followed and the EMF will strengthen the municipality's decision-making capabilities.

Chapter 7: Recommendation and conclusion

7.1 Introduction

7.1.1 Integrated Environmental Management on an international level

Integrated Environmental Management is an ideology that is practiced on an international level and the principles underlying this ideology is much older than the philosophy itself. The ideology is known by various names which includes amongst others collaborative resource management, natural resource management, ecosystem management and integrated resource management. The philosophy is implemented by means of a range of strategies and tools, each customized according to its specific environment. Most of the policies underpinning the ideology attempts to incorporate the economic, social and natural environments.

There are various reasons for the development of these ideologies and its associated strategies and tools. One of which was to better manage natural resource use and another is to assist humans to live in synergy with their natural environment. This specific philosophy was developed to facilitate the increasing complexity and communality of issues surrounding natural resource use and the management thereof. Heikkila and Gerlak (2005:583) states that the ideal of this ideology is to find and maintain the equilibrium between the natural environment and the community, especially natural resource dependent communities and government agencies responsible for the protection thereof. Even in the South African context has this philosophy been adopted and customized to cater for the domestic needs of its economy, natural resources and people.

7.1.2 Integrated Environmental Management on a national level

South Africa also adopted the integrated environmental management ideology, but in this instance it is more commonly known as sustainable development. In this local context the philosophy provides a range of principles and guidelines which gives direction for the development of appropriate policies, process, tools and projects. Various legislation and programmes has been put in place in order to provide mandate for stakeholders involved in environmental management; to perform their respective functions. These mandates, principles and guidelines provides the backbone for this philosophy and strives to ultimately be converted into environmental management tools and projects.

Vast improvement has been made in the area of environmental management pertaining to the South African context, this can be seen in the last South African Outlook report (Department

of Environmental Affairs and Tourism, 2006:2). In this instance improvements can be found in local fiscal reform, energy efficiency and cleaner production processes which conforms to norms and standards developed and mandated by the relevant environmental statutes.

The problem however is that although improvements are made in the management of the South African natural environment, natural capital is still consumed at a rate that exceeds the recovery speed of natural resources. Examples of which is deteriorating air quality, water quality and quantity, land degradation and the disruption of ecosystem functionality. In order to remedy the negative impact, various tools have been developed to counter the human impact on the natural environment which includes Environmental Management Systems (EMS) and Environmental Management Frameworks (EMF).

7.1.3 IEM tools

From the various tools available, two of the most popular are the EMS and EMF. An EMS is a systematic approach with which integration of environmental priorities and goals into the operational aspects of relevant organizations such as local government can be achieved. The EMS model prescribed for this case study conforms to the ISO 14001 International Standard and should be customised and integrated into the overall management layer of an organization.

Where the EMS facilitated improved management practices the EMF supports decision-making in order to improve sustainable development. The tool align legislative mandates and integrates policies and frameworks. It therefore acts as a policy to direct sustainable integrated land-use activities in accordance with the organisation's sustainable objectives. In the case of a local municipality the objective will be to enhance its decision-making process which will ultimately add to the wellbeing of its residents and the environment.

The problem with these tools are that there are a range of models available from which to choose from. An EMS example includes; but are not limited to the European Eco-Management and Audit Scheme (EMAS), ISO 14001 International Standard and the Responsible Care model. The difficulty therefore is to identify and adopt the one most suited to the organization, which in this case is Hessequa Municipality.

7.1.4 Hessequa Municipality

Local government as the lowest or bottom sphere of government operates at grassroots level. As a result a range of environmental legislation has been developed by national government, which provides the mandates for municipalities to perform specific functions. As Hessequa

Municipality operates within the local sphere of government they are obligated to adhere and enforce all mandates as required by the relevant statutes.

An example of one such statute is the National Environmental Management: Air Quality Act (Act 39 of 2004) which in Section 14 (3) states that municipalities *"…must designate an air quality officer from its administration to be responsible for co-ordinating matters pertaining to air quality management in the municipality".* The act in Section 15 (2) also directs local authorities to develop air quality management plans which should be reflected in their IDPs. As a result, local municipalities such as Hessequa, with their limited resources (financial and human) are responsible for a range of environmental related unfunded mandates. In order to cope with the additional responsibilities other than its funded mandates the municipality have to work smart and this is where environmental management tools can assist the local authority.

7.2 Recommendation

In order for Hessequa Municipality to improve its decision making process and delivery of services, especially those that have a direct environmental impact, is it recommended that both an EMS and EMF be developed. Although the EMS in most cases is a digitised system, it will provide the municipality with a definitive structure and guideline in the rendering of services, more specifically those services which is interrelated with the environment. The EMS will provide the community with a sense of security as it will communicate to the populace the municipality's position on the environment, which also provides a framework for action and for setting environmental objectives and targets. The system will further show how the municipality meets its regulatory or contractual obligations. The EMS should initially be developed by a dedicated committee and one individual from the committee who can take ownership of the project. It is also recommended that all five departments of the municipality be represented on the committee, with all or some of the senior manager as members. The same committee should be responsible for the EMF, but with a different individual taking ownership of the project as the framework requires a different skills level. A background in GIS will be advantageous for this role.

As the EMS and EMF will be linked to the IDP and SDF, is it further recommended that both the IDP section (Head: Strategic Services) and Town Planning section (Head: Town Planning) be members of the committee. Both the EMS and EMF should be subjected to stringent quality control and the resources from which the data is obtained should be verifiable and reliant. The

reason for this precaution is that the quality of these tools depend on the information on which they are based and the credibility of the sources. The final recommendation will be that Hessequa Municipality does not follow the route of third-party certification as this will be a costly exercise, but rather implements a complete EMS without certifying it with ISO 14001.

7.3 Conclusion

In conclusion, international trends in integrated environmental management have shown a similarity to environmental management practices in South Africa. The difference being the variations in how it is titled per country and the need to adjust and adapt this philosophy in order to counter local environmental problems.

The ideal of IEM is the conservation and sustainable use of our natural resources, irrespective of its appellation. It is designed as a holistic approach which includes society, the economy and the environment. The main concern of IEM is the conservation of natural resources and this philosophy should be applied in all regional strategies, management plans and programmes.

This philosophy was adopted in South Africa and merged at national, provincial and local government level into sustainable development approaches. Consequently, the IEM ideology is reflected in our national environmental statutes, strategies and programmes. The ideal is to cascade IEM and its functions down through the various spheres of government into the operational ambit of environmental management at local government level. To illustrate effect, this study provided an overview of the most popular tools that are currently used by the various local authorities for the implementation of integrated environmental management approaches.

In this regard the focus was drawn to two specific tools, i.e. an EMS and an EMF which are useful in the environmental management and planning profession. One of the benefits of an EMS is that it can assist municipalities to conform to their environmental obligations. Although South African legislation does not directly mandate local authorities to adopt an EMS, the tool enhances the municipality's ability to conform to environmental legislation. The system also makes allowance for local authorities to measure their environmental performance against a set of strict criteria, which makes continuous improvement in environmental management practices possible. In comparison, the EMF does have a legal mandate and presents itself as a tool which can be utilised in an interactive manner by most of the directorates within a local government setup.

As a case study, Hessequa Municipality as a local authority was analysed to determine the extent to which it adheres to environmental statutes and conforms to the IEM ideology. The

conclusion was that although the municipality faces a range of obstacles which include a shortage of funding and capacity, it does conform to IEM practices and is well on its way to improve its environmental management function. The one recommendation is that the municipality incorporates effective tools and overarching mechanisms which can facilitate decision-making in their current work methods and stratagems. This will greatly enhance Hessequa Municipality's abilities with regard to environmental management.

In order to facilitate the municipality in the formulisation of these tools, this thesis attempts to act as guide for the development thereof. These tools will ultimately contribute to the ideal of good governance, which revolves around effective and efficient decision-making processes and the municipality's ability to manage its environment and natural resources in line with the ideals of sustainable development.

References

Barbu, C., Negulescu, M., & Barbu, I.C. (2012). 'A theoretical study between the two environmental management systems: Eco Management Audit Scheme – EMAS – and ISO 14000'. *Journal of Environmental Management and Tourism (JEMT)*. Volume III, Issue 2(6)/2012, 59–69. [Online]. Available at: www.ceeol.com/aspx/issuedetails.aspx?issueid=a5d6d897-7477-43d8-abc1-fae216ab80d2&articleId=095ebe01-6712-4cc1-ba8e32f47767. (Accessed: 13 May 2013).

Bardwell, L. (1991). Problem-Framing: A Perspective on Environmental Problem Solving. *Environmental Management,* 15: 603-612.

Born, S.M., & Sonzogni, W. (1995). Towards integrated environmental management: strengthening the conceptualisation. *Environmental Management,* 19(2):167–183.

Brehm, J., & Hamilton, J.T. (1996). "Noncompliance in Environmental Reporting: Are Violators Ignorant, Or Evasive, of the Law?" *American Journal of Political Science,* 40 (2): 77–444.

Carley, M., & Cristie, I. (2000). *Managing Sustainable Development*. Second Edition. London: Earthscan.

Celliers, L., Breetzke, T., Moore, L., & Malan, D. (2009). *A User-friendly Guide to South Africa's Integrated Coastal Management Act*. The Department of Environmental Affairs and SSI Engineers and Environmental Consultants. Cape Town, South Africa.

Commission of the European Communities (2006). *Communication from the Commission to the Council and the European parliament on Thematic Strategy on the Urban Environment*. [Online]. Available at: europa.eu.int/comm/environment/urban/pdf. (Accessed: 07 July 2014).

Conley, A., & Moote, M.A. (2003). Evaluating Collaborative Natural Resource Management. *Society and Natural Resources,* 16: 371–386.

Dale, A., McDonald, G., & Weston, N. (2008). Integrating effort for the regional natural resource outcomes: The wet tropics experience. In Stork, N.E. (ed.), 2008. *Living in a Dynamic Tropical Forest Landscape,* pp 398–410. Blackwell Publishing.

Darabaris, J. (2008). Corporate Environmental Management. CRC Press.

Darnall, N., & Carmin, J. (2005). "Greener and Cleaner? The Signaling Accuracy of U.S. Voluntary Environmental Programmes." *Policy Sciences,* 38(2): 71–79.

Darnall, N., & Edwards, D. (2006). "Predicting the Cost of Environmental Management System Adoption: The Role of Capabilities, Resources and Ownership Structure." *Strategic Management Journal*, 27(4): 301–320.

Davies, C., & Webber, P. (1998). ISO 14001 Registration: The Process, the Benefits, and the Choice of Registrar. *Environmental Quality Management*, 8(2): 55–64.

Department of Environmental Affairs and Tourism (2010). *Department of Environmental Affairs and Tourism: Annual Report 2009/2010*. Pretoria: Government Printer.

Department of Environmental Affairs and Tourism (2006). *South Africa Environment Outlook*. A report on the state of the environment. Executive summary and key findings. Department of Environmental Affairs and Tourism. Pretoria: Government Printer.

Drakenstein Municipality (2012). *Environmental Management Framework for the Drakenstein Municipality* [CD-ROM]. Available: Drakenstein Municipality [2012, December].

European Community (2007). Integrated Environmental Management: *Guidance in relation to the Thematic Strategy on the Urban Environment*. Luxembourg: Office for Official Publications of the European Communities.

Global Environmental Management Initiative (1996). ISO 14001 *Environmental Management System Self-Assessment Checklist.* Revised November 2000. [Online] Available at: http://www.gemi.org. (Accessed: 27 January 2014)

Global Environmental Management Initiative (1998). *Measuring environmental performance: A Primer and Survey of Metrics In Use*. [Online] Available at: http://www.gemi.org. (Accessed: 27 January 2014)

Heikkila, T., & Gerlak, A.K. (2005). The Formation of Large-scale Collaborative Resource Management Institutions: Clarifying the Roles of Stakeholders, Science, and Institutions. *The Policy Studies Journal*. 33(4):583–612.

Hessequa Municipality (2015). *Hessequa Integrated Development Plan 2012 – 2017, 3rd Review* [CD-ROM]. Available: Hessequa Municipality [2015, May].

Hessequa Municipality (2013). *Hessequa Municipality: Integrated Waste Management Plan* [CD-ROM]. Available: Hessequa Municipality [2014, May].

Hessequa Municipality (2013). *Hessequa Municipality: Spatial Development Framework* [CD-ROM]. Available: Hessequa Municipality [2013, May].

Hessequa Municipality (2015). *Hessequa State of the Environment Report 2008 – 2015, 2nd Review* [CD-ROM]. Available: Hessequa Municipality [2015, August].

International Organisation for Standardisation (2015). *Introduction to ISO 14001:2015*. [Online] Available at: http://www.iso.org. (Accessed: 02 October 2015)

International Organisation for Standardisation (2015). *ISO 14001 Key Benefits*. [Online] Available at: http://www.iso.org. (Accessed: 02 October 2016).

"Integrated Environmental Management (IEM)". Worldwide web (2007). *Enviropaedia Rethinking Reality*. [Online] Available at: http://www.enviropaedia.com/topic/default.php?topic_id=141. (Accessed: 15 May 2013).

Jennings, S., & Moore, S. (2000). The rhetoric behind regionalisation in Australian natural resource management: myth, reality and moving forward. *Journal of Environmental Planning and Policy*, 2(3):177–191.

Jiang, R.J., & Bansal, P. (2003). Seeing the Need for ISO 14001. *Journal of Management Studies*, 40(4): 1047–1067.

"Local Government". Worldwide web (2015). *Hessequa Municipality*. [Online] Available at: http://www.localgovernment.co.za/locals/view/217/Hessequa-Local-Municipality. (Accessed: 18 August 2015).

Margerum, R.D (1999). 'Integrated Environmental Management: The Foundations for Successful Practice'. *Journal of Environmental Planning and Management*. 24(2), 151–166. [Online] Available at: http://planet.uwc.ac.za/nisl/Gwen's%20Files/GeoCourse/Integrated%20Environmental%20Management/IEM/Peer%20Reviewed/Margerum1999.pdf. (Accessed: 27 July 2014).

Margerum, R.D., & Born, S.M. (2000). 'A coordination diagnostic for improving integrated environmental management'. *Journal of Environmental Planning and Management*, 43, 5–21. [Online] Available at: http://www.tandfonline.com/doi/pdf. (Accessed: 27 July 2014).

Mattli, W., & Bürhe, T. (2003). "Setting International Standards: Technological Rationality or Primacy of Power?" *World Politics*, 56(1): 1–42.

McCreary, J. H. (1996) ISO 14001 A framework for coordinating existing environmental management responsibilities. *CIM Bulletin*, 89 (999): 65-70

Middleton, J., Goldblatt, M., Jakoet, J., & Palmer, I. (2011). *Environmental Management and Local Government.* [Online]. Available at: http://www.pdg.co.za/wp-content/upload/Environmental-management-and-local-government.pdf. (Accessed: 19 July 2014).

Mzuri Consultants (2002). *North West Province State of the Environment Report.* Pretoria: Provincial Government of the North West Printers.

Muller, K. (2004). Sustainable development: The question of integration and coordination. *Journal of Public Administration*, 39(3): 398-410.

Potoski, M., & Prakash, A. (2013). Do Voluntary Programmes Reduce Pollution? Examining ISO 14001's Effectiveness Across Countries. *The Policy Studies Journal*, 41(2): 273–294.

Ralborn, C.A., Joyner, B.E., & Logan, W. (1999). 'ISO 14000 and the bottom line'. *Quality Progress*, 32(11): 89–93.

Rendell, G.E., & McGinty, A.K. (2004). *Environmental Management Systems*. A Guidebook for Improving Energy and Environmental Performance in Local Government. [Online] Available at: www.dep.state.pa.us. (Accessed: 14 May 2013).

SALGA (2014). *Good Environmental Governance In Local Government: A Practice Brief on Environmental and Climate Change Governance for South African Municipalities*. Issue 1 of 3, March 2014.

Scrase, J. I., & Sheate, W. R. (2002). Integration and Integrated Approaches to Assessment: What do they mean for the Environment*? Journal of Environmental Policy and Planning*, 4: 275-294.

Shaw, D., & Kidd, S. (2001). Sustainable development and environmental partnership at the regional scale: the case of Sustainability North West. *European Environment*, 11(2):112–123.

South African National Biodiversity Institute (2010). *Biodiversity Sector Plan for Hessequa and Mossel Bay Municipalities* [CD-ROM]. Available: South African National Biodiversity Institute: Biodiversity GIS Unit [2011, 24 June].

South Africa (1965). *Atmospheric Pollution Prevention Act, 45 of 1965*. Pretoria: Government Printer.

South Africa (1989). *Environmental Conservation Act, 73 of 1989*. Pretoria: Government Printer.

South Africa (1995). *Development Facilitation Act, 67 of 1995*. Pretoria: Government Printer.

South Africa (1998a). *Demarcation Act, 27 of 1998*. Pretoria: Government Printer.

South Africa (1998b). *National Environmental Management Act, 107 of 1998*. Pretoria: Government Printer.

South Africa (1998c). *Local Government: Municipal Structures Act, 117 of 1998*. Pretoria: Government Printer.

South Africa (2000). *Local Government: Municipal Systems Act, 32 of 2000*. Pretoria: Government Printer.

South Africa (2003a). *National Environmental Management: Protected Areas Act, 57 of 2003*. Pretoria: Government Printer.

South Africa (2003b). *Municipal Finance Management Act, 56 of 2003*. Pretoria: Government Printer.

South Africa (2004a). *Integrated Environmental Management Information Series*. Pretoria: Government Printer.

South Africa (2004b). *National Environmental Management: Air Quality Act, 39 of 2004*. Pretoria: Government Printer.

South Africa (2004c). *National Environmental Management: Biodiversity Act, 10 of 2004*. Pretoria: Government Printer.

South Africa (2008a). *National Environmental Management: Waste Act, 59 of 2008*. Pretoria: Government Printer.

South Africa (2008b). *National Framework on Sustainable Development*. Pretoria: Government Printer.

South Africa (2008c). *The Constitution of the Republic of South Africa*. 5th ed. Pretoria: Government Printer.

South Africa (2010a). *National Strategy for Sustainable Development.* Pretoria: Government Printer.

South Africa (2010b). *Environmental Management Framework Regulations*. Pretoria: Government Printer.

South Africa (2011). *National Strategy for Sustainable Development and Action Plan.* Pretoria: Government Printer.

South Africa (2012). *Integrated Environmental Guideline Series (Guideline 6)*. Pretoria: Government Printer.

South Africa (2013). *Spatial Planning and Land Use Management Act, 16 of 2013*. Pretoria: Government Printer.

South Africa (2014). *National Environmental Management: Integrated Coastal Management Amendment Act, 36 of 2014*. Pretoria: Government Printer.

Starkey, R. (1999). ISO 14001: Missed opportunity for sustainable global industrial development. *Business Strategy and the Environment*, 8 (3): 201

Stellenbosch Municipality (2013). *Environmental Management Framework* [CD-ROM]. Available: Stellenbosch Municipality [2014, June].

"Sustainability". Worldwide web (2016). *Oxford Living Dictionaries*. [Online] Available at: http://en.oxforddictionaries.com/definition/sustainability. (Accessed: 19 September 2016).

Visser, H. (2015). Interviewed by Shagon Carelse. 5 August 2015.

Waterberg District Municipality (2010). *Environmental Management Framework for the Waterberg District Municipality* [CD-ROM]. Available: Waterberg District Municipality [2010, October].

Western Cape Government (1985). *Land Use Planning Ordinance, 15 of 1985*. Cape Town: Government Printing Works.

Western Cape Government (2014a). *Land Use Planning Act, 3 of 2014*. Cape Town: Government Printing Works.

Western Cape Government (2014b). *Western Cape Government: Environmental Affairs and Development Planning 2014 Greenest Municipality Competition Report*. [CD-ROM]. Available: Department of Environmental Management and Development Planning [2015, February].

Winter, S., & May, P. (2001). "Motivation for Compliance with Environmental Regulations." *Journal of Policy Analysis and Management,* 20 (Fall): 675–98.

United Nations. Brundtland Commission (1987). *Report of the World Commission on Environment and Development, Our Common Future*. Published as Annex to General Assembly Document A/42//427, Development and International Cooperation: Environment. 2 August 1987.

Annexures:

Addendum 1: Stewardship Contract

MEMORANDUM OF UNDERSTANDING

Entered into by and between

THE WESTERN CAPE NATURE CONSERVATION BOARD

("the Board")

Established in terms of Section 2 of the Western Cape Nature Conservation Board Act, 1998 (Act No. 15 of 1998), t/a CapeNature

Herein represented by

THE CHIEF EXECUTIVE OFFICER

Duly authorized hereto

And

HESSEQUA MUNICIPALITY

Herein represented by

_____

(Identity number: _____)

In his capacity as Municipal Manager duly authorized hereto

("the Owner")

A. **WHEREAS** the Board is currently assisting the Owner with an application in terms of section 23of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003), as amended ("the Act"), to request the MEC of the Province of the Western Cape to declare the under mentioned property or a portion thereof as Nature Reserves, the Properties being:

1. Erf 5383/2001, Riversdale, Situated in the Hessequa Municipality, Division of the Eden District Municipality, Western Cape Province;
   In extent: 4.2285 Hectares

   ("Aloe Ridge Nature Reserve")

2. Remaining Extent of Erf 140, Gouritsmond, Situated in the Hessequa Municipality, Division of the Eden District Municipality, Western Cape Province;
   In extent: 171.2417 Hectares

   ("Gouritsmond Nature Reserve")

3. Remaining Extent of Erf 557 Heidelberg, Situated in the Hessequa Municipality, Division of Swellendam, Western Cape Province;
   In extent: 6.9761 Hectares

   Held by Deed of Transfer Numbers. T2466/1901 and T96549/2005;

   ("Heidelberg Nature Park")

4. Remaining Extent of Erf 214 Stilbaai Oos, Situated in the Hessequa Municipality, Division of Riversdale, Western Cape Province;
   In extent: 157, 4022 (One Hundred and Fifty Seven comma Four Zero Two Two)

   Held by Deed of Transfer Numbers. T51359/1993 and T62704/2001;

   Erf 238, Still Bay, Situated in the Hessequa Municipality, Division of the Eden District Municipality, Western Cape Province;

   In extent: 229, 7238 (Two Hundred and Twenty Nine comma Seven Two Three Eight) Hectares

   Held by Deed of Transfer Numbers. T13983/1963 and T86585/2002

   ("Pauline Bohnen Nature Reserve")

5. Remaining Extent of Erf 657, Still Bay, Situated in the Hessequa Municipality, Division of the Eden District Municipality, Western Cape Province;
In extent: 89.6681 Hectares

Erf 658 Still Bay, Situated in the Hessequa Municipality, Division of the Eden District Municipality, Western Cape Province;

In extent: 19, 9814 (Nineteen comma Nine Eight One Four) Hectares

Held by Deed of Transfer Numbers G198/1968 and T62578/2001;

("Skulpiesbaai Nature Reserve");

6. Remaining Extent of Erf 2018, Riversdale, Situated in the Hessequa Municipality, Division of the Eden District Municipality, Western Cape Province;
In extent: 427, 3647 (Four Hundred and Twenty Seven comma Three Six Four Seven) Hectares

Held by Deed of Transfer No. RIF1-1/1183;

Erf 2015 Riversdale, Situated in the Hessequa Municipality, Division of the Eden District Municipality, Western Cape Province;

In extent: 241.2172 Hectares

Remaining Extent of Erf 2001, Riversdale, Situated in the Hessequa Municipality, Division of the Eden District Municipality, Western Cape;

In the extent: …….. (……..) Hectares

Held by Deed of Transfer No. ……

("Werner Frehse Nature Reserve");

7. Remaining Extent of Erf 159, Witsand, Situated in the Hessequa Municipality, Division of the Eden District Municipality, Western Cape Province;
In extent: 241.2172 Hectares

Remaining Extent Erf 160, Witsand, Situated in the Hessequa Municipality, Division of the Eden District Municipality, Western Cape Province;

In extent: 241.2172 Hectares

("Witsand Nature Reserve")

B. AND WHEREAS the Owner is aware of the fact that the process of declaring the Properties or certain portions thereof as Nature Reserves in terms of the Act is time consuming and expensive;

C. AND WHEREAS the Owner undertakes not to withdraw the power of attorney to conclude a notarial agreement to have the Properties or portions thereof declared as Nature Reserves.

NOW THEREFORE THE PARTIES AGREE AS FOLLOWS:

1. In the event that the Owner decides to consolidate or sub-divide the Properties or portions thereof after the public participation process for the intention to declare the Properties or portions thereof as Nature Reserves has been completed, and such consolidation or sub-division results in the property descriptions changing, the Owner shall be liable for all costs related to the further public participation process which needs to be followed.
2. In the event the Owner withdraws from the process to declare the Properties or portions thereof as Nature Reserves in terms of section 24of the Act, the Owner shall reimburse the Board for any expenditure reasonably incurred by it from the date of signature hereof until the date of such withdrawal by the Owner, which costs may include, but are not limited to, surveying costs of the property, legal costs to prepare the notarial agreement and power of attorney Management Agreement and all advertisement costs as well as incentives that the Board might deliver, in the form of, but not limited to, services such as alien clearing, fire management planning, construction and maintenance of fire breaks, erosion management, business planning and erection of fences.
3. Pending the declaration of the Properties or portions thereof as Nature Reserves in terms of the Act, the Owner undertakes to manage the Properties, from the date of signature hereof, in accordance with the provisions of the Management Agreement concluded with the Board.

4. Each of the Parties to this Memorandum of Understanding shall act with the utmost good faith and use all reasonable endeavors to procure the fulfilment of the declaration of the Properties or portions thereof as Nature Reserves, in terms of the Act.

SIGNED AT …… on this ..... day of ……..…….... 201…. in the presence of the undersigned witnesses.

…….. **……**

OWNER (PRINT NAME) **SIGNATURE**

AS WITNESSES

1 ……..... **2 ……..……**

SIGNED AT …… on this …… day of ……..……. 201… in the presence of the undersigned witnesses.

CHIEF EXECUTIVE OFFICER **SIGNATURE**

(PRINT NAME)

AS WITNESSES

1 ……... **2 ……..**

Addendum 2: List of proclaimed municipal nature reserves

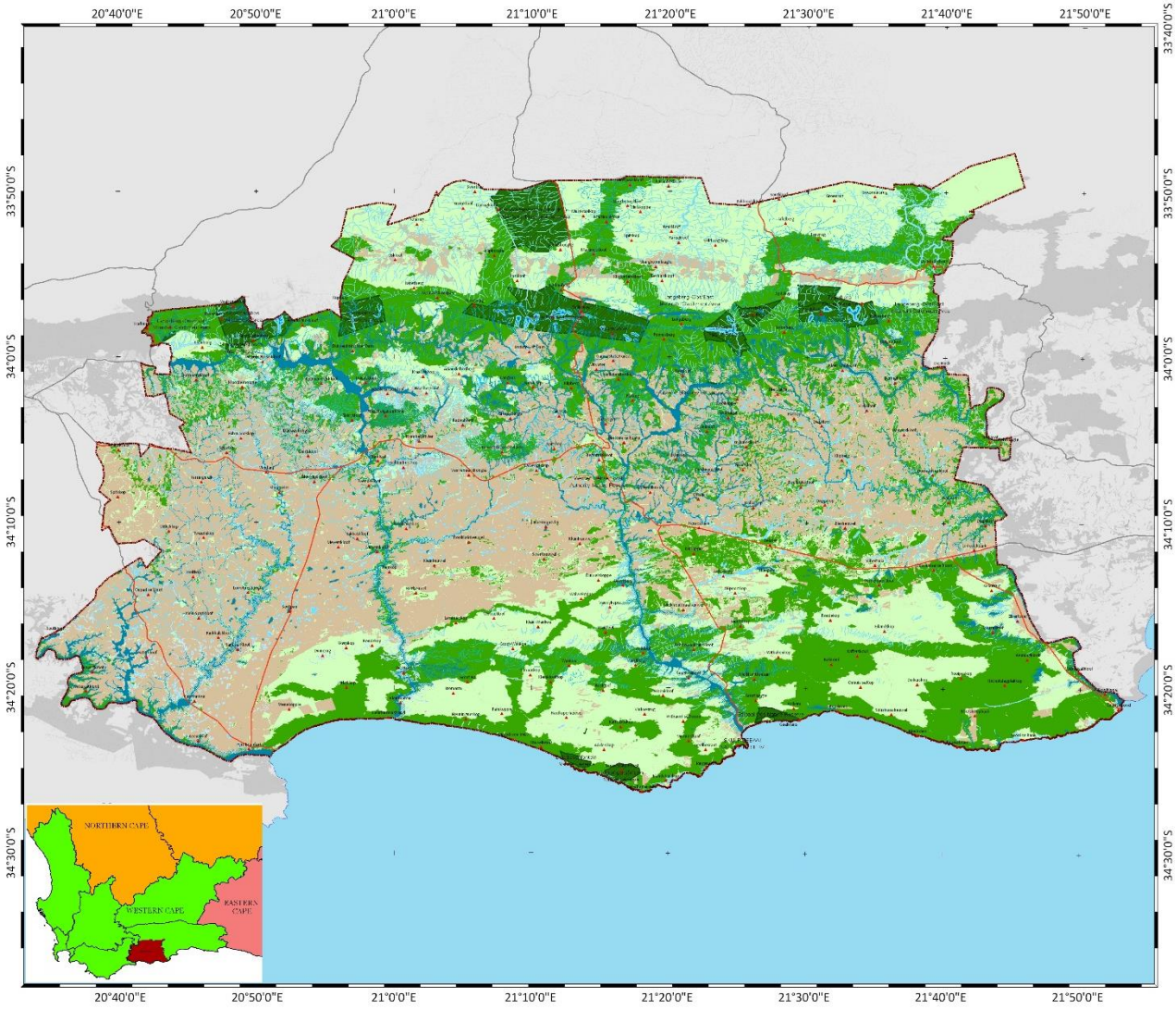
Municipal Nature reserves

	Name	Classification	Size
1.	Aloeridge Local Nature Reserve	Local Authority Nature Reserve	4.2ha
2.	Heidelberg Local Nature Reserve	Local Authority Nature Reserve	3.7ha
3.	Pauline Bohnen Local Nature Reserve	Local Authority Nature Reserve	386.6ha
4.	Skulpiesbaai Local Nature Reserve	Local Authority Nature Reserve	99.7ha
5.	Werner Frehse Local Nature Reserve	Local Authority Nature Reserve	195.6ha
6.	Witsand Local Nature Reserve	Local Authority Nature Reserve	-
7.	Gourits Commonage (not proclaimed, zoned as Open Space 3)	Public Open Space	40.6ha

Addendum 3: Hessequa Biodiversity Fine-Scale Plan

MUNISIPALITEIT
HESSEQUA
MUNICIPALITY

CRITICAL
BIODIVERSITY
AREAS MAP



Legend

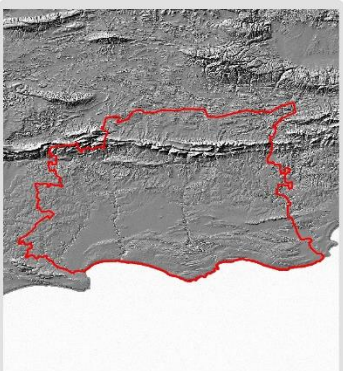
- Place Names
- Roads
- Municipality Boundary
- Protected Areas
- Critical Biodiversity Area - Terrestrial
- Critical Biodiversity Area - Aquatic and Buffers
- Critical Ecological Support Areas and Buffers
- Other Ecological Support Areas and Buffers
- Other Natural Areas
- No Natural Remaining
- Urban Areas

N

1:158,549

9 4.5 0 9

Kilometres



This map was produced by the Fine-Scale Biodiversity Planning Project, as part of Component 5.1 of Cape Action for People and the Environment (C.A.P.E.)

For more information contact: Scientific Services, CapeNature, Tel 021 866 8000.
For GIS Data or Maps contact: Biodiversity GIS (BGIS) at the South African National Biodiversity Institute, Tel 021 799 8738
or on the internet at http://bgis.sanbi.org/